

THE FIRST FISHERWOOD SHIP BUILT IN JAPAN (Drawings). See pp. 48-50.
MR. G. S. BAKER'S NEW BOOK, REVIEWED. See p. 45.

SHIPBUILDING AND SHIPPING RECORD

A JOURNAL OF SHIPBUILDING, MARINE ENGINEERING, DOCKS, HARBOURS AND SHIPPING

LONDON: Queen Anne's Chambers, S.W.
GLASGOW: 37, Union Street.
NEWCASTLE: 12, Grey Street.

THURSDAY, JULY 15, 1915.

Price Sixpence Weekly.
Prepaid Subscription for 12 months:—
Inland, £1 5s 0d.; Abroad, £1 12s 0d.

**FOR MARINE ENGINEERING
AND SHIPBUILDING WORK.**

Forgings, Stampings, Castings, Rods, Sheets, Wire, Tubes, etc.

DELTA METAL

Bronze, Yellow Metal, Copper, Brass, White Metals, etc.
THE DELTA METAL CO., LTD.,
DELTA WORKS,
EAST GREENWICH, LONDON, S.E.

THE YORKSHIRE COPPER WORKS, LTD., **TUBES** **BRASS and**
LEEDS. **COPPER.**
"BEMAL" BRASS CONDENSER TUBES.

THE "STONE-LLOYD" SYSTEM of HYDRAULICALLY OPERATED WATERTIGHT DOORS. **J. Stone & Co., Ltd.**
AS FITTED TO LATEST MAIL AND PASSENGER STEAMERS. Deptford, LONDON, S.E.

ROBT BOWRAN & Co., LTD., Newcastle-upon-Tyne. **MARINE METALS**
"WHITE" BRONZE, "MARINE" BRONZE.

SEE'S ASH EJECTORS,
SELF-TIPPING ASH BUCKETS, &c.

PATENT
ASH DISCHARGING APPLIANCES
F. J. TREWENT & PROCTOR, LTD.
43, BILLITER BUILDINGS, LONDON, E.C.

WM. M^CGEOCH & CO. LTD.
FOR
Ships' Brassware, Lamps & Electric Fittings
GLASGOW, BIRMINGHAM, LONDON & NEWCASTLE.

JOHN I. THORNYCROFT & Co., Limited.
CAXTON HOUSE, WESTMINSTER, S.W. **PARAFFIN & PETROL MODELS**
Telephone: VICTORIA 8,000. **SHIPBUILDERS & ENGINEERS.** **MOTOR LAUNCHES AND**
ALL TYPES OF POWER CRAFT.

N. HINGLEY & SONS, LTD.



Netherton Iron Works
DUDLEY.

**ELECTRICAL INSTALLATIONS
ON STEAMSHIPS. . . .**

W. C. MARTIN & CO.,
10, West Campbell Street, Glasgow.

Telegrams:
"MOTIVE," Glasgow.

Contractors for Cunard R.M.S.
"AQUITANIA."

"SUN" TUGS

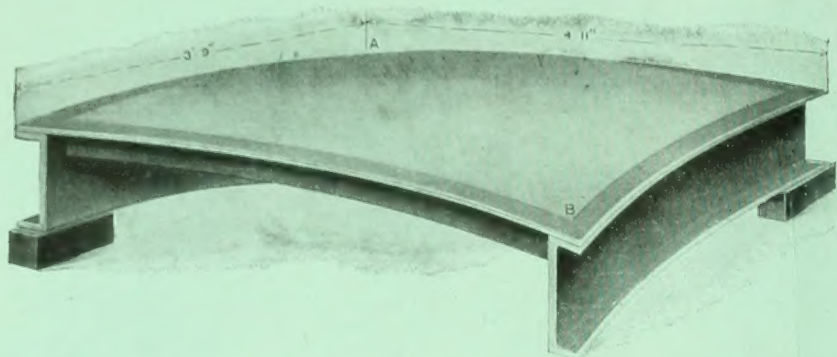
ALL CLASSES OF TOWAGE AND LIGHTERAGE.
LARGE LIGHTERS. POWERFUL PUMPS.

Apply to:—

W. H. J. ALEXANDER,

WAPPING, LONDON, E.
Telegrams: "SKIFFS, WAP, LONDON."
Telephone Nos.: Avenue 921 (4 lines).
" 2400 for Night and Sunday use.

DOCKERS' INDUROLEUM FIREPROOF FLOORING *for* SHIPS, SHIPS' SALOONS, &c., &c.



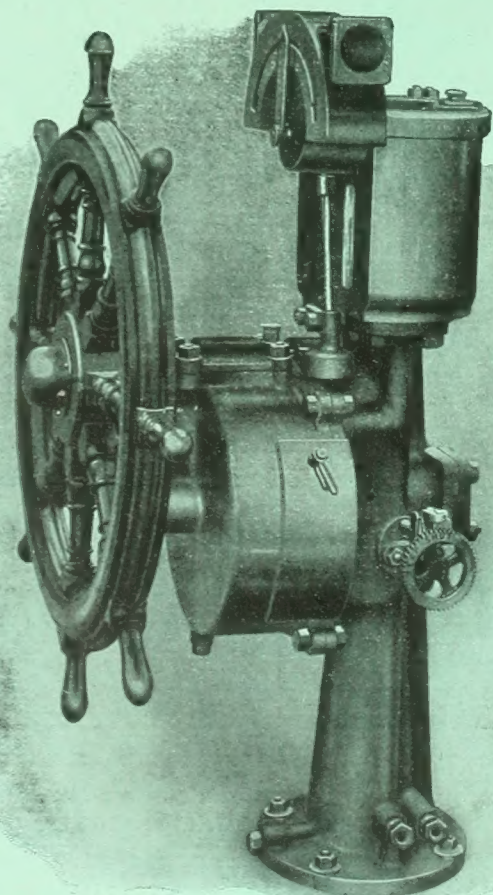
This Sketch shows an actual test of "INDUROLEUM" Flooring. The "Induroleum" was laid $\frac{3}{4}$ in. thick on $\frac{1}{2}$ in. Steel Plate and supported at cross corners, the opposite corners A B were then pressed down by hydraulic pressure to the extent of 3 in., and released without any sign whatever of cracking the "Induroleum."

INDUROLEUM is the finest flooring composition obtainable. It is FIREPROOF, ELASTIC, JOINTLESS, ANTISEPTIC. It is easily applied and sets with an even surface. *Supplied in all Colours.*

DOCKER BROTHERS, LTD., *Head Offices:* SALTLEY, BIRMINGHAM.

Telegrams: JAPAN, Birmingham.

Telephone: 6410 Central (six lines).



STEERING TELEMOTORS

UNIVERSALLY ADOPTED BY THE
LEADING SHIPPING COMPANIES.

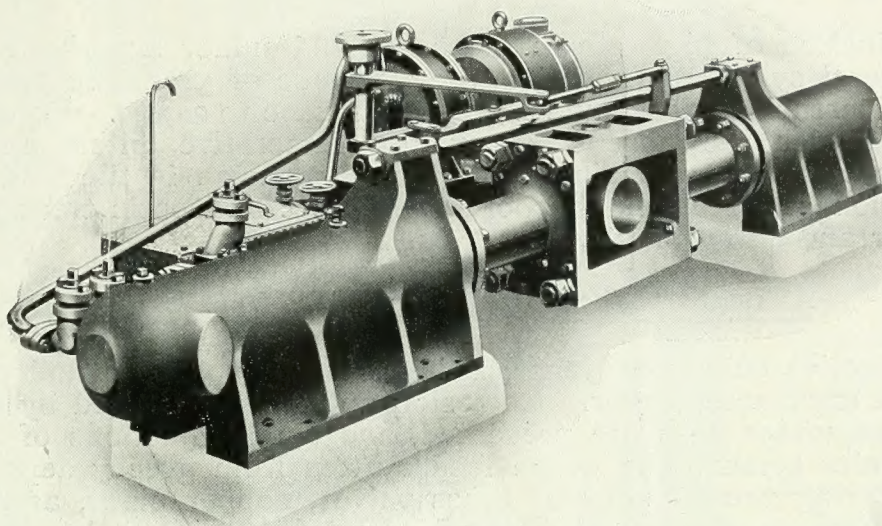
MACTAGGART, SCOTT & Co., LTD.

LOANHEAD, EDINBURGH.

Telegrams: "Valve, Loanhead." :: Telephone No. 12.

CONTRACTORS TO BRITISH AND FOREIGN
ADMIRALTIES.

HELE SHAW MARTINEAU ELECTRIC - HYDRAULIC STEERING GEAR.



JOHN HASTIE & CO., LTD.,
ENGINEERS ∴ GREENOCK.

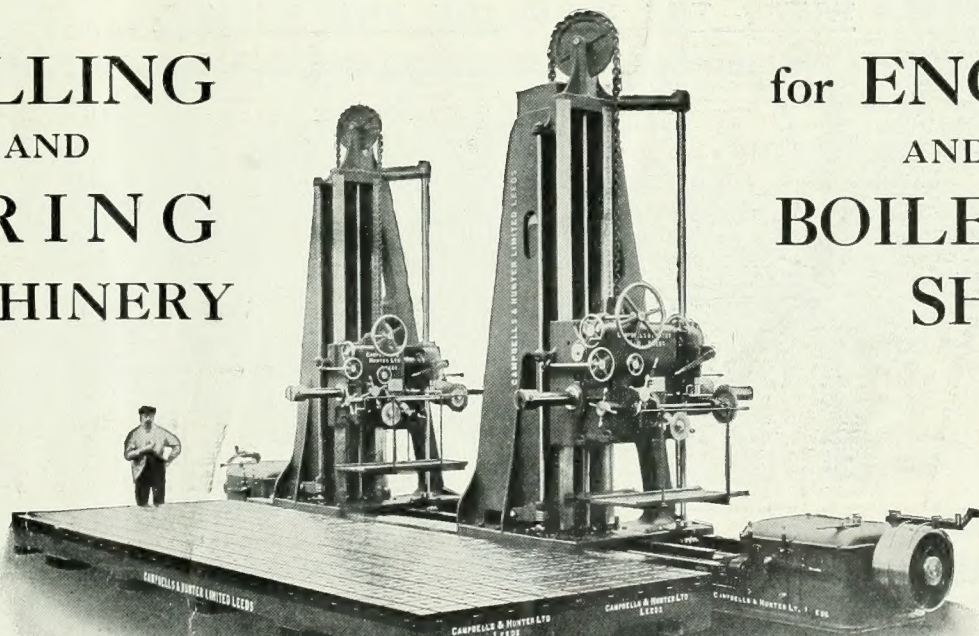
CAMPBELLS & HUNTER, Limited, Dolphin Foundry, LEEDS.

TELEGRAMS: DOLPHIN, LEEDS.
TELEPHONE: 768 LEEDS.

DRILLING
AND
BORING
MACHINERY

for ENGINE
AND
BOILER
SHOPS.

Of all
Types and
up to the
Largest
Sizes.



Your
enquiries
will be
esteemed.

HORIZONTAL DRILLING, TAPPING, STUDING, BORING, FACING & MILLING MACHINE.

GREASE AND ATLAS "E."

Since the introduction of high steam pressures and under superheat conditions, necessitating liberal cylinder lubrication, the presence of grease in marine boilers has become an increasing factor, and a greater menace to safety. Forced draught conditions also render the absence of grease imperative, filters and auxiliary grease separators assist in removing the oil in suspension in the feed water, but the oil in emulsion still reaches the boilers. Direct antiseptic treatment of the boiler feed water and surfaces is essential.

ATLAS "E" BOILER PRESERVATIVE

has a rapid destructive effect on grease, which is partly solidified and precipitated in the form of a harmless powder. Corrosion and pitting caused by the decomposition of grease under heat are prevented, and small injections of Atlas "E" with the feed water cleanse the whole feed system from greasy deposits, at the same time preserving the surfaces of brass valves, copper pipes, and the whole structure alike. Grease is removed from all parts of the boilers, leaving furnaces, tubes and plates clean and dry.

PLEASE WRITE OR TELEPHONE US FOR FULL PARTICULARS.

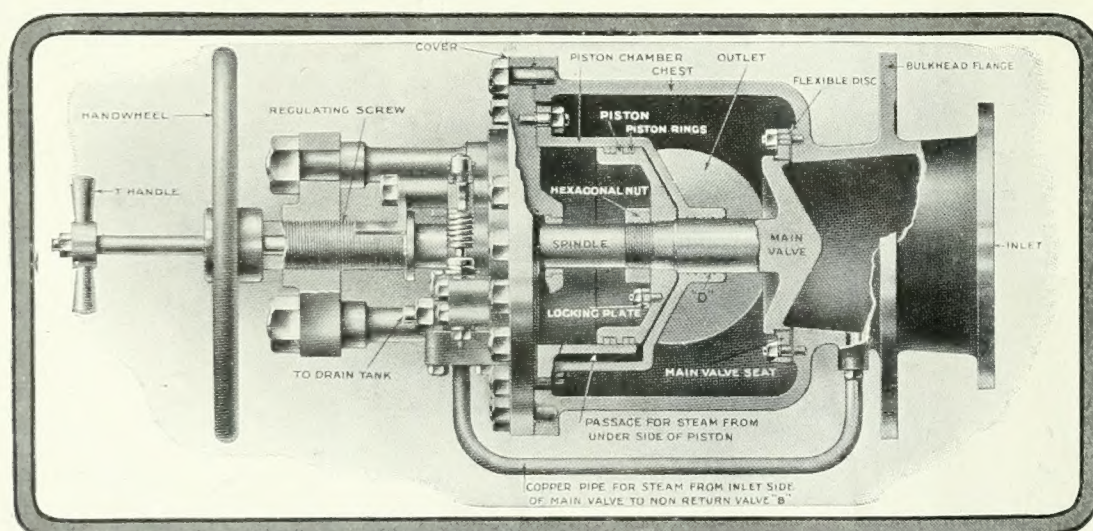
ATLAS PRESERVATIVE CO., LTD., DEPTFORD, LONDON, S.E.

TELEPHONE No.: 743 NEW CROSS.

COMBINED BULKHEAD SELF-CLOSING AND EMERGENCY SHUT-OFF VALVE.

(PATENTED.)

TAKES THE PLAGE OF TWO VALVES.



MINIMUM WEIGHT. STEAM TIGHT.
PERMITS ADOPTION OF VERY LIGHT CONTROL GEAR.

SOLE MAKERS:

COCKBURNS, LIMITED,
CARDONALD, near GLASGOW.

ESTABLISHED 1862.

TELEGRAMS:—
"COCKBURN, GLASGOW."

The "DURHAM CHURCHILL" SPEAKING TUBE

(ADMIRAL ROSE'S PATENT).

Adopted by:

Messrs. ELDER, DEMPSTER
& Co., Ltd.

BRITISH INDIA STEAM
NAVIGATION Co.

AUSTRALASIAN UNITED
STEAM NAVIGATION Co.

ABERDEEN LINE.

ANGLO-AMERICAN
OIL Co.

AUSTRIAN NAVY.

DUTCH NAVY.

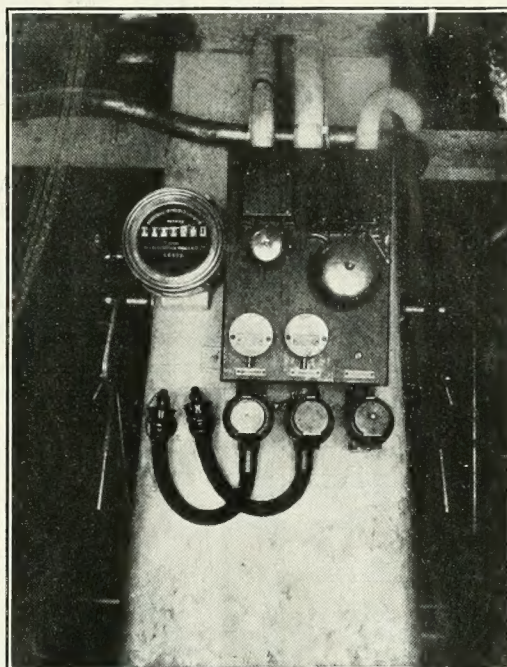
RUSSIAN NAVY.

CUNARD SS. Co.

PACIFIC STEAM NAVI-
GATION Co., Ltd.

P. & O. STEAM NAVI-
GATION Co.

ROYAL MAIL STEAM
PACKET Co.



ENGINE ROOM, "S.S. EGORL."

Adopted by:

TRINITY HOUSE
BRETHREN.

UNION CASTLE LINE.

GREAT CENTRAL RLY. Co.

GREAT EASTERN RLY. Co.

GREAT WESTERN RLY. Co.

L. & N.W. RLY. Co.

MIDLAND RLY. Co.

L. & Y. RLY. Co.

S.E. & C. & D. RLY. Co.

WHITE STAR LINE.

Messrs. STOOMVART,
Maatschappij, Nederland.

Cannot go wrong like other mechanical appliances. Every Tube Guaranteed.

SOLE LICENSEES
... and ...
MANUFACTURERS:

DURHAM, CHURCHILL & Co., Grimesthorpe,
Sheffield, Eng.

Cab Tyre Sheathed Cable

(Pat No. 3996/1911)

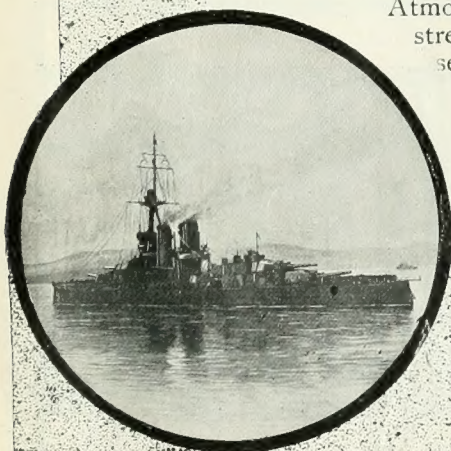
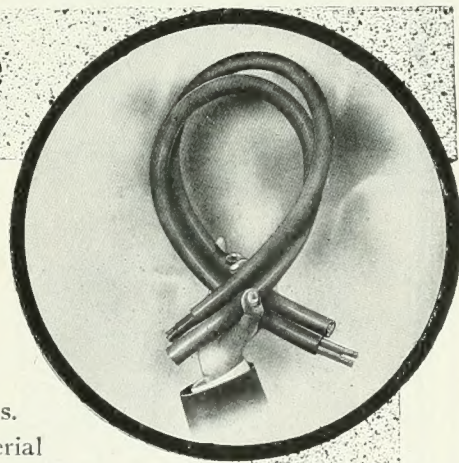
*Recommended for those situations
where rubber insulated cable has
to contend with severe usage.*

Cab Tyre Sheathed Cable is being extensively used for Shipboard and Dock Work on account of its high efficiency and reliability under the most trying conditions.

Our Cab Tyre Sheathing is a specially prepared material made to resist the action of Salt Water, Sea Air, Corrosion, Atmospheric changes, etc., and on account of its flexibility, strength and general toughness is pre-eminently suitable for severe situations.

Callender's Cab Tyre Sheathed Cables are installed on His Majesty's Battleships and in the yards of Shipbuilding and Engineering Works, where a permanent rubber Cable installation is essential.

We should like you to send for our descriptive booklet.



*H.M.S. Emperor of India
Super - Dreadnought
Installed with Callender's
Cab Tyre Sheathed Cable*

Callender's
Victoria Embankment, London E.C.

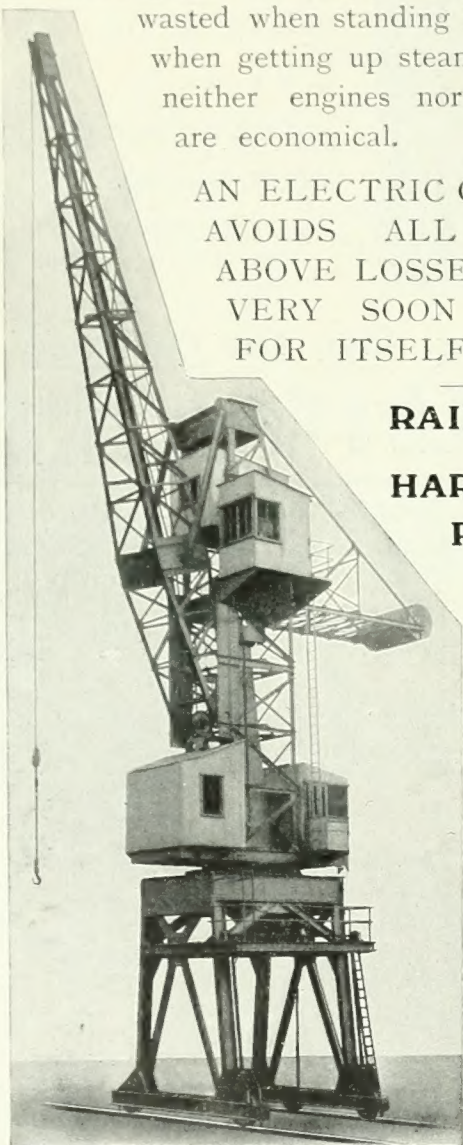
R. & R. Ltd.

Reliable Dock Cranes

Electricity as a motive power has proved immensely cheaper than steam for Dock and Harbour Cranes. Such cranes are seldom employed continuously throughout the day; fuel is thus wasted when standing idle and when getting up steam. Also neither engines nor boilers are economical.

AN ELECTRIC CRANE
AVOIDS ALL THE
ABOVE LOSSES AND
VERY SOON PAYS
FOR ITSELF.

**RAILWAY
AND
HARBOUR
PLANT**



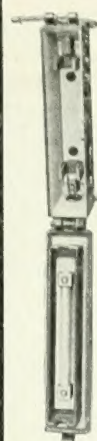
PATENT ELECTRIC LUFFING CRANE
as supplied to the
UNION OF SOUTH AFRICA.

SEAPLANE LAUNCHING APPARATUS

RANSOMES & RAPIER, LTD.

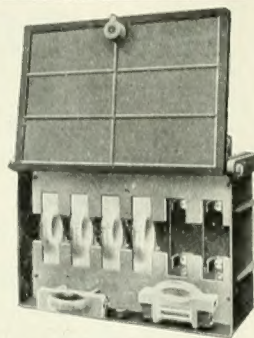
DEPARTMENT V.

32, VICTORIA STREET, WESTMINSTER, S.W.



To **WORKS
EXTENDING
FOR WAR
SERVICE**

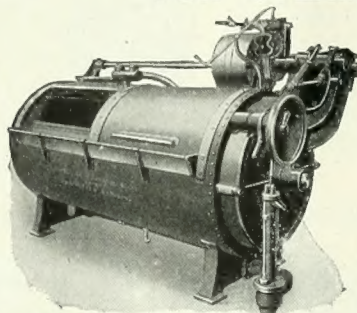
we can deliver from
stock **IRONCLAD
SWITCHGEAR,
SWITCHES, &c., &c.**



A. REYROLLE & CO. LTD.

HEBBURN ON TYNE.

BRADFORDS' LAUNDRY MACHINERY FOR STEAMSHIPS



Bradfords' "Surgar" Washing, Boiling & Rinsing Machine.
— Saves Water, Soap, and Labour. —

**Laundries, ashore
and
afloat, a speciality.**

Electric, Steam, or Hand-
power.

Efficient and Economical.

Plans, Estimates, and Catalogue
(No. 319) post free on application.

T. BRADFORD & Co.

MANCHESTER:
Crescent Iron Works,
Salford.

LONDON:
141-142, High Holborn.

LIVERPOOL:
130, Bold Street.

— THE — RAPID CIRCULATOR

PATENTED.

**ALL STEAM BOILERS
should have them fitted.**

It automatically keeps the water circulating, giving a uniform temperature throughout the Boiler, doing away with racking strains which cause leaky seams, grooved plates, etc., through unequal expansion.

Easier Steam, Saves Coal.

MAKERS:

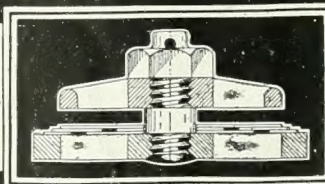
**THE BERESFORD ENG. CO.,
Beresford Lane, CARDIFF.**

ALSO MAKERS OF FEED HEATERS,
SUCTION FILTERS, STERN TUBE
GREASE PUMPS, RUDDER BUFFERS,
FAIRLEADS, AUXILIARY
CONDENSERS, PUMPS, ETC.



KINGHORN'S PATENT VALVES

THE BEST VALVE
FOR PUMPS OF ALL
DESCRIPTIONS
ADOPTED UNIVERSALLY
AND USED BY
15 ADMIRALTIES.



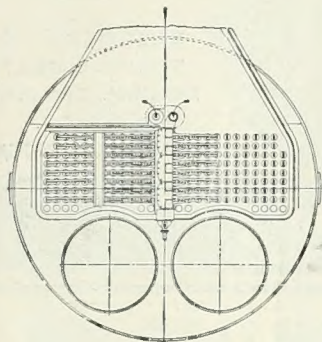
FITTED TO
H.M.S. DREADNOUGHT
& SISTER SHIPS &
TO THE NEW CUNARD
WHITE STAR & OTHER
LEADING LINERS.

TELEPHONE:—
5818 CENTRAL.

**THE METALLIC VALVE CO.
COLONIAL HOUSE, WATER STREET,
LIVERPOOL.**

TELEGRAMS:
"VALVE"

Can be fitted to any boiler



The "Robinson" Superheater

was invented by a British Engineer, is owned by a British Company, and is manufactured entirely in Great Britain.

If you are a user of superheated steam let us demonstrate to you the advantages of the

"Robinson" Marine Superheater

the simplest and most reliable superheater on the market. It possesses special features which are not obtainable in other types. It NEVER leaks. It is the only superheater which has all parts readily accessible for cleaning and inspection. It economises coal and—it

is British.

Write for our Booklet.

The SUPERHEATER CORPORATION, Ltd.
9 BRIDGE STREET, WESTMINSTER,
S.W



By Royal Warrant
to H.M. the King.

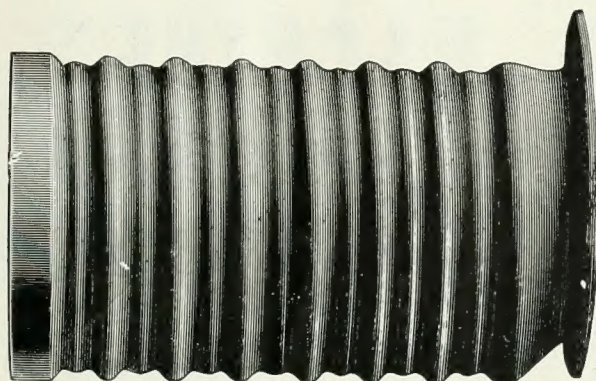
WAYGOOD-OTIS,
Ltd.
(ESTABLISHED 1833),
LONDON, S.E.

BRITISH BUILT

WAYGOOD-OTIS LIFTS

have been fitted on

White Star Liner	...	...	...	BRITANNIC	(11)
White Star Liner	...	...	...	OLYMPIC	(8)
Cunard Liner	...	...	...	MAURETANIA	(14)
Cunard Liner	...	...	...	LUSITANIA	(11)
Etc.,	Etc.,	Etc.,	Etc.,		



DEIGHTON'S PATENT FLUE & TUBE Co., Ltd.

Telegrams: "Flues, Leeds."

Telephone: 1674 (National).

MAKERS OF DEIGHTON, MORISON and FOX TYPE OF

CORRUGATED FURNACES For MARINE and LAND BOILERS.

FULL PARTICULARS AND CATALOGUE ON APPLICATION.

No other Type of Furnace has a Greater Heating Surface per foot run than the DEIGHTON Section.

VULCAN WORKS, PEPPER ROAD, HUNSLET, LEEDS.

J. SAMUEL WHITE & CO LTD

WHITE-FORSTER WATER
TUBE BOILERS.
WHITE-FORSTER
FEED REGULATORS.
OIL FUEL PUMPS
AND BURNERS.
MARINE OIL FUEL
INSTALLATIONS.
RECIPROCATING ENGINES.



90" STEEL TWIN SCREW, SHALLOW DRAUGHT, MOTOR MAIL
VESSEL, "MANATEE" FOR SERVICE IN SOUTHERN NIGERIA

MARINE-DIESEL OIL
ENGINES

BUILDERS OF
TORPEDO CRAFT.
SPECIAL SERVICE
VESSELS.
STEAM & MOTOR LAUNCHES

LONDON OFFICE.
28, VICTORIA ST SW
TELEGRAMS "CARNAGE LONDON"
TELEPHONE 4507 VICTORIA.

EAST COWES, I.W.

HEAD OFFICE.
TELEGRAMS "WHITE"
EAST COWES.
TELEPHONE 1153 COWES

PACKING AND STEAM TRAPS

The Finest in the World.

Fitted on Britain's Largest Liner.

R.M.S. "AQUITANIA."

THE UNITED STATES METALLIC PACKING CO., LTD., Soho Works, BRADFORD, YORKS.

LONDON: 116, Fenchurch St.
NEWCASTLE: 2, Collingwood St.

LIVERPOOL: 15, Fenwick St.
SWANSEA: Pembroke Bldgs.

GLASGOW: 52, St. Enoch Sq.
Belfast, Hull, Bristol, Cardiff, etc.

(REGISTERED)

Trade **"TRIMAX"** Mark

Metal Furnace Bridge

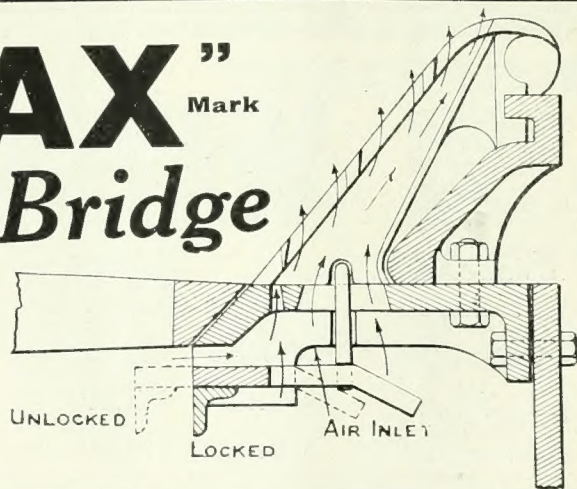
(PATENT No. 29657, 1912.)

A. McCONWELL & CO., LTD., 60, Drury Buildings,
LIVERPOOL.

AGENTS—London—C. N. Ash, Billiter Square Buildings, E.C.
Glasgow—Danl. Ferguson, 27, Oswald Street.
Sunderland—Geo. Swainston, Jnr., 48, West Sunnyside.

Telegrams—"Turbinia, Liverpool."

Telephone—No. 5994 Central.



REFRIGERATING MACHINES

CO₂ and Ammonia Systems.

L. STERNE & CO., LTD.,

The Crown Iron Works, GLASGOW.

London Office: DONINGTON HOUSE, NORFOLK STREET, W.C.

SHIP REPAIRERS MARINE ENGINEERS

Electric and Oxy-acetylene Welding. Complete Electric Plant, etc.

Steam Winch, Steering Gear, and Windlass Replace Parts always in Stock.

C. & H. CRICHTON, LTD.,

HUSKISSON ENGINE WORKS.

Telegrams—
"CRITON, LIVERPOOL."

4 to 10, DERBY ROAD, LIVERPOOL.

Telephone—
BOOTLE 875 (4 lines).

Head Office—TOWER BUILDING, LIVERPOOL.

(Telephone—6650 Central.)

WM. CHALMERS & Co., Ltd.

RUTHERGLEN, Nr. GLASGOW.

Telegrams: "SCOW, RUTHERGLEN."
Telephone: 459 RUTHERGLEN.

Cables: "SCOW, RUTHERGLEN."
Code: A B C 5TH EDITION.

Light Draught Shipbuilders & Engineers.

BARGES
YACHTS
LAUNCHES
TUGS

STERN WHEELERS
DOCK GATES

SIDE WHEEL STEAMERS
FLOATING CRANE PONTOONS
FLOATING DOCK PONTOONS
HOPPER BARGES
(SIDE OR BOTTOM DISCHARGING)
SAND PUMP DREDGERS



DAY, SUMMERS & CO., LTD.,

Northam Ironworks, Southampton.

Engineers and Shipbuilders. - - -
Tug Boats, Paddle Boats. - - -
Cargo Boats and Passenger Steamers.

2 Slipways for Repairs
and 2 Sets Steam Sheers.

SPECIALITIES—

Land and Floating Traversing
Sheers. Patent Hauling-up Slipway
Machinery. Steam Ferry Bridges.



TWIN-SCREW TUG "NEPTUNE." 1600 H.P.

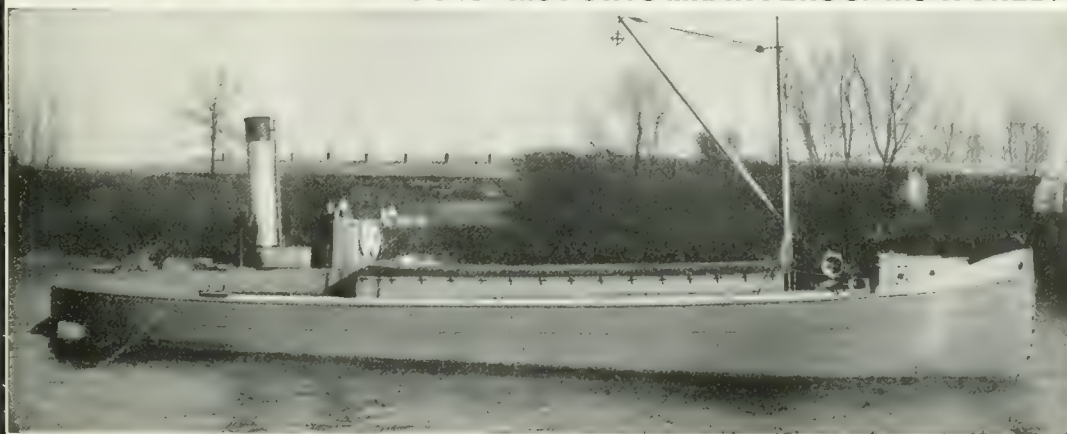
BUILDER of OVER 900 CRAFT for the PORTS and RIVERS of the WORLD.

1 Station. Tel.: 65 Gainsboro.

J. S. WATSON, GAINSBORO',

Builder of
STEEL LIGHTERS,
TUGS,
MOTOR BARGES,
STEAM BARGES,
HOPPER BARGES.

Speciality :
**WORK FOR
SHIPMENT ABROAD.**



SPEED UP YOUR WAR CONTRACTS.

Carbic

PORTABLE OXY-ACETYLENE WELDING & CUTTING PLANTS

WILL MATERIALLY ASSIST YOU.

CARBIC is a specially prepared Carbide supplied in Cylindrical Cakes. The Cakes are easy to handle, and waste from deterioration is entirely prevented. Gas is only generated when water is in actual contact with the Cake.

CARBIC GENERATORS are really portable. They are especially suitable for breakdown work, and possess many outstanding advantages. The generation of Acetylene is constant. Intermittent or over generation is impossible.

CONTRACTORS TO
THE ADMIRALTY,
WAR OFFICE,
LEADING RAILWAYS and
SHIPBUILDING COMPANIES.

Carbic Limited,

51, HOLBORN VIADUCT,
LONDON, E.C.

BULLIVANTS'

FLEXIBLE STEEL-WIRE HAWSERS & ROPES.

WIRE ROPES FOR CRANES, LIFTS,
HOISTS, AND ALL MARINE PURPOSES.

FLEXIBLE, DURABLE, AND
— ABSOLUTELY RELIABLE. —

BULLIVANT & Co., Ltd., Registered Offices: 72, Mark Lane, E.C. Works: Millwall, London, E.

TELEPHONE No.: 2108 AVENUE (3 lines).

"ISHERWOOD SYSTEM OF SHIP CONSTRUCTION"

Suitable for ALL TYPES of Vessels.

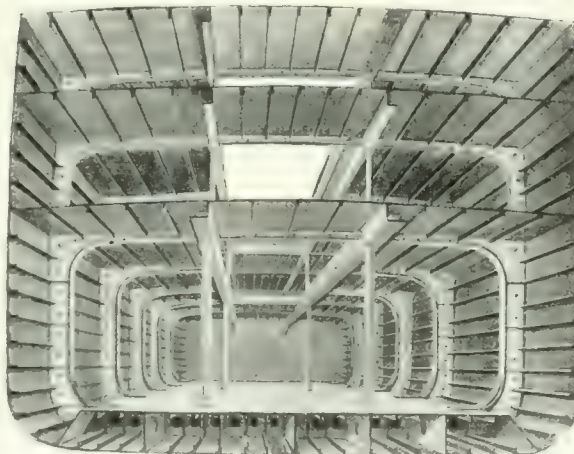
Increased Strength.

Increased Capacity
for Bale Goods.

Increased D.W.
Carrying Capacity.

Improved Ventilation.

Reduced Cost of
Maintenance.



Reduced Vibration.

367 Vessels Built
or being Built,
representing about
1,740,540 gross reg.
tons.

154 Bulk Oil Carriers,
representing about
844,420 gross reg.
tons.

For particulars apply to—

Telephone—
1064 Avenue.

J. W. ISHERWOOD,

4, LLOYD'S AVENUE, LONDON, E.C.

or to S. C. CHAMBERS & CO., 3, King Street, LIVERPOOL.

Telegraphic Address—
"Ishercon."

SHIPBUILDING AND SHIPPING RECORD

A JOURNAL OF SHIPBUILDING, MARINE ENGINEERING, DOCKS, HARBOURS AND SHIPPING

PUBLISHED EVERY THURSDAY AT
QUEEN ANNE'S CHAMBERS, WESTMINSTER, LONDON, S.W.

Branch Offices—
GLASGOW: 87, UNION STREET. NEWCASTLE: 12, GREY STREET.
NEW YORK: WOOLWORTH BUILDING.

Telegraphic Address: "RECORDSHIP, LONDON." Telephone No.: 2247 VICTORIA.

Subscription, including regular weekly and special issues, published from time to time, payable in advance and postage free:—

British Isles.....	£1 5s. 0d.
Elsewhere.....	£1 12s. 0d.
Single Copies.....	Sixpence.

The Editors will be glad to consider articles and paragraphs submitted by competent writers. All accepted contributions will be paid for. Whilst every care will be taken to return unsuitable articles, photographs and drawings (when a stamped addressed envelope is enclosed for that purpose) the Editors cannot hold themselves responsible for the safekeeping of unsolicited contributions.

VOL. VI. THURSDAY, JULY 15, 1915. No. 3.

CONTENTS.

EDITORIALS:		
Notes on Current Topics.....	41	The Baltic and White Sea Conference after the War..... 46
Japanese Activities.....	44	Port Charges at New Orleans..... 47
Engineers and the Munitions Act.....	44	Declaration of London: Italian Decree..... 47
Marine Diesel Engine Operation..	45	
Publications Received.....	45	
ILLUSTRATED:		GENERAL NEWS SECTION..... 53
<i>Peking Maru</i>	48	OFFICIAL NOTICES AND SHIP SALES..... 59
A Lifeboat for a Private Yacht.....	51	
Screw Tug <i>Scoop</i>	51	SHIPPING SHARE MARKET..... 60
M.S. <i>San Francisco</i>	52	

An Index to the Fifth Volume of SHIPBUILDING AND SHIPPING RECORD, covering the issues from January 7 to June 24, 1915, is presented as a Supplement to each copy of this week's issue.

THE views of employers and workmen engaged on Admiralty work and in the manufacture of munitions of war in the Clyde industrial area have now been placed before the Central Board of Control appointed to carry out the provisions adopted under the Defence of the Realm Act for **Clyde Liquor Traffic.** the regulation of the liquor traffic, with a view to increasing the efficiency of the labour employed in shipbuilding, engineering, and munition work. The members of the Board held a number of conferences in Glasgow last week, first with the employers of labour and then with representatives of the trade unions concerned. Perhaps the most striking feature of these conferences was the unanimity and the urgency with which the shipbuilding and engineering employers pressed on the Board the necessity for the total prohibition of the sale of intoxicating liquors in the Clyde area during the period of the war. Several leading employers, who have never identified themselves with temperance matters in the past, are the most strenuous advocates of prohibition during the present crisis. If the Clyde has gained a certain amount of unenviable notoriety in respect of bad time-keeping and "slack-ing" in the shipyards and engineering shops through drink, the blame for that certainly cannot be laid at the door of the employers, who have done all in their power to induce the Government to adopt drastic measures in dealing with the drink problem, in so far as it related to efficiency in the workshops. The attitude taken up by the trade union representatives before the Board of Control was, generally speaking, one of opposition to total prohibition, but it is now understood that a committee representative of both employers and men will be appointed to draw up a scheme for the establishment of canteens.

The Ministry of Munitions has by proclamation forbidden the South Wales Miners to strike. If any of them do, an offence punishable under the Munitions of War Act will be committed. Coal mining was not included specifically as one of the industries to which the **Coal Crisis.** Act automatically applied. It fell, therefore, amongst those which in the case of emergency may be brought within the purview of the Statute by proclamation declaring that the existence of a dispute in the industry is prejudicial to the manufacture, transport and supply of munitions of war. We view with satisfaction the step which the Ministry of Munitions has taken. It is drastic, but it is supremely imperative. We fail to realise the state of mind of large bodies of workmen who, in the presence of a great war straining every fibre of the nation, persist in perpetuating industrial discord.

The shareholders of the Cunard Steamship Company will, as holders of the ordinary share capital of the Anchor Line (Henderson Brothers), Limited, read with considerable satisfaction the accounts of the latter company, issued this week. Circumstances have developed very differently from what Mr. Booth expected when, in July last, he warned the shareholders that prospects were not in any way so favourable to the achievement of good results as in the two previous years. The following summary shows that the company has not only maintained, but has slightly increased, its record of 1913-14:—

Year ended April 30.	Total profits.	Depreciation allowance.	To Reserve.	Available for ordinary Dividend.	%	Carried forward.
1915 ...	394,235	125,866	100,000	132,913	15	95,413
1914 ...	390,715	110,851	50,000	124,462	15	86,962
1913 ...	388,693	119,647	50,000	113,643	15	76,143
1912 ...	303,426	153,061	35,000	78,828	7½	60,078
1911 ...	241,739	110,000	35,000	60,202	7½	41,452

Until the meeting is held on Wednesday, the 21st inst., we are not able to indicate precisely where the company has been able to reap unexpected benefits. Apart from the normal business, it is probable that the New York-Mediterranean service has developed high pressure as the result of the business between the United States and Italian and French ports. The Indian trade has doubtless also been very active. The preference shareholders who stuck to the Anchor Line during the lean days of 1908-9 are to be congratulated upon their strong financial position. The reserve fund now totals £400,000, and the amount carried forward to the current year is more than sufficient to meet a whole year's debenture interest.

Mr. Justice Atkin, in his judgment in the case of the F. A. Tamplin Steamship Company v. the Anglo-Mexican Petroleum Products Company, set his mind to elucidate the principles on which the mutual rights of owners and charterers of vessels which have been requisitioned by the Admiralty rest. The crucial question in such a case is: Has the action of the Admiralty put an end to the contract embodied in the charter party? Has there been a breach of the contract going to its root which entitles the shipowner to put an end to it? If the shipowner alleges that there has been, he must prove it by evidence. Otherwise it appears that the charterer is entitled to the compensation offered by the Government for the diversion of the vessel from the charterer's uses. Let us see how the law is applied to the facts in this case. The steamer *F. A. Tamplin*, belonging to the plaintiffs, was chartered under a long time charter to the defendants for the carriage of refined petroleum or crude oil or its products, and a "restraint of princes" clause was embodied. In December last the steamer was requisitioned by the Admiralty, and again in February. Under orders given in the second requisition she was ordered to Liverpool, and structural alterations for the

carriage of troops were made. The owners claimed that the charter party was thereby put an end to or at least suspended, because they said the requisition could not be treated as a subletting, as the charterers were not entitled to sublet so as to permit the structural alterations and the use for the carriage of troops. The charterers invoked the "restraint of princes" clause as protecting them. An arbitrator to whom the case was submitted came to the conclusion that the charter had come to an end. Mr. Justice Atkin took a contrary view. In his opinion there had been no breach of contract by either party and, therefore, no ground for saying that it had come to an end. Only when the ship became unfit to carry oil without default on either side was the contract brought to an end. The charterers were therefore entitled to the compensation given by the Government.

Every week now seems to bring into the law courts a case illustrating the difficulties, dangers and interruptions which the war has imposed on merchant shipping. Sometimes the question of fact involved becomes rather difficult to answer. For instance, in the case of the *East Asiatic Company, Ltd., v. the SS. Tronto Company, Ltd.*, the issue is reduced to this: Was it an unreasonably hazardous enterprise to cross the North Sea from Hull to Amsterdam in November? The *Tronto*, belonging to the defendants, arrived at Hull early in that month from the East. She had on board a parcel of soya beans shipped under bills of lading, to be delivered at Amsterdam or so near thereto as the vessel could safely get. The owners fearing the effect of the German floating mines declined to send the *Tronto* across the North Sea, and claimed that they had fulfilled their obligations by offering delivery at Hull. Meanwhile, the soya beans were detained by the authorities here pending inquiries as to ownership and destination. On November 26 their export from this country was prohibited. The shippers raised an action for damages against the shipowner for failure to carry the beans to Amsterdam. Mr. Justice Bailhache has now held that as many vessels were at the time regularly trading to Amsterdam without mishap, Amsterdam was a safe port, and the owners of the *Tronto* did not therefore fulfil their contract by discharging at Hull. But the prohibition of the export of soya beans was in fact a "restraint of princes," an exception under the bill of lading. This rendered the shipowners immune from the resultant damages. In all the circumstances his lordship disallowed the claim of the Asiatic Company for damages and a counterclaim of the shipowners for freight lighterage and warehouse charges.

When the new Norwegian-American line was established about three years ago, and the *Kristianiafjord* and *Bergensfjord* built at Birkenhead, the promoters looked with optimism upon the future of the company. This was before the war clouds had arisen, but while the greater part of Europe is plunged in strife the Norwegian-

The Norway-America Line.

American route has maintained its usefulness and incidentally filled an important rôle in supplying the link between the United States and the belligerents. The decision to add another vessel to the fleet—the *Stavangerfjord*—is further evidence that the financial success of the enterprise has far exceeded the most liberal estimate of its promoters. The line also owns and operates three large freight steamers and has chartered a dozen more in order to handle the steadily increasing freight traffic from the United States. At present the line is handling considerable quantities of mail and freight in transit between the United States, Russia, and the Far East, and the American Consulate at Bergen is in frequent receipt of inquiries from commercial interests at Petrograd relative to facilities at Bergen for transferring freight from the Norwegian-American Line to the mountain railway in transit from the United States to Russia. With a view of meeting the demand for better

dock facilities and in aid of commercial expansion that has already taken place, Bergen is now constructing harbour docks that will give the Norwegian-American Line needed space and up-to-date loading and discharging facilities.

Neutral Powers are acknowledging the British claim that a merchant vessel may carry armament and use it in self-defence.

Armed Merchant Ships. Lord Robert Cecil, the Under-Secretary for Foreign Affairs, made this announcement in reply to a question in the House of Commons. This claim of ours is, in fact, an established and un-

interrupted incident of belligerency at sea, but as we have frequently noted the guns may be used for self-defence only. Commanders of vessels who employed them for offensive purposes would exceed the measure of their authority and would consequently at international law deprive themselves of their immunities. This would affect their commercial status in neutral waters. We observe that Lord Robert Cecil states that merchant vessels armed for self-defence have been trading regularly with various countries since an early stage in the war.

Notwithstanding many unsuccessful attempts to develop the United States mercantile marine in the foreign trade, all indications

American Shipping Legislation. now point to greater activity in this connection soon. Indeed, it is already known that two subjects of considerable importance to British and American shipping interests will come up for consideration in the next session of Congress,

namely, the Seamen's Act, with a view to its repeal, and the Ship Purchase Bill, which the Wilson Administration is anxious should become law. Pending a decision on these and other maritime questions, business men throughout the Republic have been expressing their views respecting the advisability of legislative action for the purpose of expanding the shipping industry, and, according to the result of a referendum submitted to over 600 Chambers of Commerce and trade organisations, opinion is strongly against the Government undertaking the purchase, construction, charter of vessels, together with their operation, and the State-ownership of merchant vessels, but with operation by private parties under leases. On the other hand, the provision of subsidies to offset the difference in cost between the running of ships under American and foreign flags, and of subventions for the establishment of regular passenger and cargo services to countries in which the commercial interests of the United States are important, is regarded as the most practical solution of the problem. In addition, the creation of a Federal shipping board to investigate and report to Congress regarding the navigation laws, and to have full jurisdiction in all matters relating to oversea transport is recommended. These suggestions, it will be noted, do not support the ship purchase proposals, which have, in fact, been almost universally condemned. The likelihood is that ultimately nothing will be done.

Our New York contemporary, *Shipping Illustrated*, has nothing much to the good to say of the referendum referred to in the preceding note. It may be recollected that

The U.S.A. Referendum. the proposal for a State-owned scheme was rejected, but a majority was obtained for the granting of State subsidies. "In shipping circles,"

says our contemporary, "the consensus of opinion relative to the referendum is one of almost complete indifference. It is hard for the practical shipping man to perceive how tangible results can be accomplished by such means as the taking of a vote among people, few of whom are qualified to pass an opinion on so technical a subject as the industry of marine transports. The manner in which the questions were presented precluded the expression of competent opinion. It will be noticed that the vote is overwhelmingly opposed to Government ownership of sea carriers, yet it

endorses the complete subscription by the Government of a stock issue for the purpose of loans to shipping by a private enterprise. Why such a roundabout way of frankly authorising the Government to loan public funds on shipping property? This problem has been solved in Sweden by direct loans from the State to shipping companies, according to the recommendations of a consulting committee, and the results have been very satisfactory. In the States, we are told, there is no need of such direct intervention of the Government in shipping finance, for there exist ample resources for such purposes, and all that is needed is reasonable assurance given by the Government that a shipping mortgage bank would have the good will of the supreme authority of the land to make its existence an almost certainty of the near future. Another vote was cast in favour of the granting of subsidies to offset the difference in cost of operation between vessels under the American flag and foreign vessels. At such a time as this such a proposition has all the appearance of a practical joke!"

In a paper entitled "Galvanized Iron and Steel," which Mr. John H. Paterson, D.Sc., contributed to our contemporary, the *Shipbuilder*, the subject of materials employed in ship construction is dealt with in an interesting manner. The author remarks that zinc is attacked fairly rapidly by sea water, and although it acts perfectly as a protector to iron when immersed in sea water it is very quickly eaten away when both iron and zinc are exposed. The British Admiralty make a practice of galvanizing the frames and plates of light ships such as torpedo-boats and destroyers. The surface of a ship thus constructed is, however, far from being completely covered with zinc. The rivets, of course, are of naked steel, and the edges of a great many of the plates have been cut after the plate has been galvanized, thus exposing a raw edge of steel. It is obvious that if such a ship were left in the water without a protective coat of paint the zinc would soon disappear around the rivets and about any exposed edges of steel, and the shell would then be subject to the ordinary dangers of corrosion. It is clear, therefore, that galvanized ships have only a very expensive protective coating applied to them which must itself be as carefully protected by paint as the hull of any ordinary merchant vessel. The only obvious advantage in building a ship of galvanized plates is that it allows a longer period between the times necessary for repainting. Another objection to the use of galvanized iron is shown in the constant failure of the galvanized iron, steel and water pipes in merchant vessels.

Particulars of the trials of the two remarkable vessels which have recently been built by Messrs. Wm. Cramp & Sons, Philadelphia, were given in our issue last week. These ships, the *Great Northern* and *Northern Pacific*, were constructed for the purpose of maintaining an express service between San Francisco and Astoria, Oregon, and are ocean-going steamers of 500 ft. in length and have a service speed of 23 knots. They are said to be the finest merchant vessels ever built in the United States and are declared to be in many ways far ahead of anything that foreign builders can boast of. With a length as stated above they have a beam of 63 ft. and are 50 ft. 8 in. deep to the promenade deck. At their load draught of 21 ft. they displace 9,700 tons. The hull is built on extremely fine lines, while at the same time ample space is provided for 856 passengers, 198 crew, about 2,185 tons of freight, and the 25,000 h.p. propelling plant with its fuel and auxiliaries. Deducting 2,200 tons for cargo, 1,200 tons for oil fuel, 200 tons for water and 100 tons for passengers, crew, and stores, it is found that the light weight of these ships is only 6,000 tons. This is a remarkable figure for ships of such size and power. If it be assumed that $12\frac{1}{2}$ h.p. was obtained per ton of machinery, the weight of the latter would be 2,000 tons,

which would leave only 4,000 tons for the weight of the hull. It is very questionable if a vessel of these dimensions could be built with such a small weight of material. A larger figure must therefore be allowed for horse-power per ton weight of machinery. The ships had watertube boilers burning liquid fuel, and had fast-running turbines, so it is possible the figure obtained was higher than that indicated above. Allowing for machinery a weight of only 1,000 tons, the weight arrived at for the hull, suggests that the scantlings must have been very light and the material carefully arranged to give the necessary strength. A great amount of enterprise is shown in the whole design and the remarkable achievement could only have been possible with the adoption of oil fuel, watertube boilers and fast-running turbine machinery. Watertube boilers are gradually finding their way into the merchant service; several passenger ships on both sides of the Atlantic have these now fitted. If their reliability can be established considerable economy in weight might be effected by substituting these for Scotch boilers in vessels where high speeds are desired.

In the course of some tests made for determining the heat transmission value of various lengths of tubes in marine feed-water heaters in the United States, precautions were taken for getting rid of all accumulated air from the steam side of the heaters. Water will absorb nearly 2 per cent. by volume of air, and this air will be carried over by the steam. At a given pressure and temperature of saturation air has a greater density than the steam with which it is associated, and it will gradually accumulate above the condensation in the bottom of the heater. Thus, part of the surface is rendered inaccurate and the film resistance is increased to an extent that heat transfer is appreciably reduced. This blanketing effect will be greater in a film heater with horizontal tubes than if the tubes be vertical, and in the latter case the usual method of blowing through pet cocks in the covers will be ineffective. The results of a $2\frac{1}{2}$ -hour test on a film heater, during which time no air was relieved from the steam space and the water seal permitted only the relief of water, are given in the course of a paper entitled "Heat Transmission and Tube Lengths" appearing in the *Journal of the American Society of Naval Engineers*, the author being Mr. L. Loeb. The rate of heat transmission decreased steadily from 661 B.t.u. per sq. ft. per degree average temperature difference to 558 B.t.u., a net loss of 15.6 per cent. At the same time the hot feed temperature fell from 195.1 to 181.8 deg. Although full steam-pressure of 10 lb. was maintained the temperature at the bottom of the heater fell from 234.7 to 216.5 deg., and two lower temperatures were noted during the test.

There are several powerful advocates for the adoption of electric propulsion in ships, notably Mr. Emmet and Mr. Hobart, in America, and Mr. Mavor and Mr. Durnall in this country. Probably more encouragement has been given to their proposals in America than has been afforded on this side, and a considerable degree of success has attended the fitting of the U.S. naval collier *Jupiter* with high-speed turbines and electric reduction gear. Several points are considered when choosing a method of propulsion for ships, viz., reliability, manœuvring qualities, economy of fuel, in space, and in weight, and the question of the care and upkeep. In order to determine how electric propulsion would compare with other systems, an installation was installed in the *Jupiter*. This ship has now been over two years in service and has thoroughly justified the experiment. In all the points named above satisfactory results were obtained, and the success of the 36,000 h.p. installation in the U.S.A. battleship *California* would seem to be assured. In ships where the turbines drive the propellers direct a compromise is effected to give moderately high efficiencies of turbines and screws; with reduction gear it is possible to have both running near their

**The "Great
Northern"
and
"Northern
Pacific."**

**Electric
Drives.**

maximum efficiencies. The turbines of the *Calcutta* will have a speed of 2,200 r.p.m., and will deliver to the generator 75 per cent. of the available energy in the steam. The revolutions will be reduced to about 160 at the screws. Parsons tooth gearing has proved its efficiency in large and small vessels and Föttinger's hydraulic system has also been successful. When the results of the experience with these and the electric system become thoroughly known, interesting comparisons will be made possible. One feature in favour of the hydraulic and electric systems of reduction gears is that no astern turbines are required, this being accomplished by the transformers. It is possible that experience will demonstrate that each particular system has a certain pre-eminence in certain fields, but the advocates of the electric drive are sanguine that in the realm of battleship propulsion their system will be thoroughly successful.

JAPANESE ACTIVITIES.

IN these columns a few weeks ago reference was made to the interesting developments that were taking place in connection with the mercantile marine of Japan. At the time, as a matter of fact, their importance was under, rather than over, estimated, for more recent information shows that the expansion of the ship-owning and shipbuilding industries of our Far Eastern Ally is on a much bigger scale than was generally thought to be the case, although when European conditions become normal it is probable that progress will not be so rapid, and that, in fact, much of the enterprise will come to an end. However this may be, it is very evident that at present Japanese shipping activities are widespread. Indeed, it would be difficult to find any vessel on the national register of good capacity out of employment; while, notwithstanding the increased cost of construction, contracts for no fewer than 45 steamers aggregating 185,000 tons gross, had been placed by the end of April last, and there is good reason to believe that since then the list has been extended. An anti-Japanese boycott on the part of the Chinese is, we understand, interfering to some extent with services along the coast of the Republic, but in other directions much is being done. Most of the cargo boats employed on the Far Eastern-European route are now induced to sail across the Atlantic to American ports, and then to pass through the Panama Canal with kerosene, oil, and raw cotton for China and Japan. The inauguration of the Nippon Yusen Kaisha's service to New York, via Panama, has already been mentioned, and it is said that there is every likelihood of a fusion of interests between that concern and the Toyo Kisen Kaisha, which maintains a Transpacific service between the Orient and San Francisco, in conjunction with the Pacific Mail Steamship Company, whose vessels will, by the way, cease running if the United States Seamen's Act is not repealed by Congress in December next. As far as can be ascertained the Japanese vessels on various services until recently were:—Europe, 55,800 tons; Hawaii and the United States, 46,747 tons; South Seas, India and Australia, 172,000 tons; and Japan and China, coasting, 421,000 tons. During the past few weeks, however, several additions have been made, and there are more to follow.

The activity in shipping circles naturally is reflected in shipbuilding yards out there. For example, the Mitsu Bishi yard in Nagasaki has four ships with a tonnage of 7,300 each and two of 3,700 tons each under construction. At the Kobe yards of the same company one 1,800-ton and two 5,300-ton vessels are on the ways. The Kawasaki yards are building one 1,700-ton, one 3,000-ton, two 4,000-ton and three 7,300-ton boats. Other important orders being executed at the different shipyards are:—Osaka Iron Works, Osaka—six 7,300-ton, one 5,000-ton, twelve 3,200-ton, and one 1,100-ton boats; Uruga Dockyard Company, Uruga—four 2,200-ton vessels; Fuji Nagata yard—one 2,000-ton ship; Harima yards, Kobe—two 1,100-ton vessels. As we have already said, there are at least 45 ships under construction, and there are said to be many still being negotiated for between builders and owners.

ENGINEERS AND THE MUNITIONS ACT.

IT is difficult to gather exactly what the attitude of the Amalgamated Society of Engineers is to the Munitions of War Act. The Executive Council has never been enthusiastic in its support of the demand for an acceleration of the output of munitions, although the ballots on the Shells and Fuses Agreement and the Treasury Agreement were clear enough leads for it. It seems now, however, formally to have approved the Act, which is printed in full in the July "Journal" of the Society. At any rate, in a letter sent on June 14 to Mr. Arthur Henderson it intimated its acceptance of the National Advisory Committee's memorandum on which the Act is based. The rank and file of the Society have not had an opportunity either to approve or disapprove the Act, but they have, by a majority, approved the Treasury Agreement, of which the memorandum of the National Advisory Committee is an amplification. They have also by a majority approved the Shells and Fuses Agreement which covers the same ground, but with a more limited application, as the Treasury Agreement. In these circumstances, one would expect to find in a democratic institution like the Amalgamated Society of Engineers a unanimous desire to give the Act its intended effect.

Instead of a unanimous desire to give the Act its intended effect we find in the July issue of the Society's official report the least reasonable hostile criticism of the measure it has been our lot to read. The contributor is one of the organisation's district delegates, whose hostility to any arrangement of the kind first found expression in the discussions which led up to the Shells and Fuses Agreement. He describes the Bill—it was still only a Bill when he wrote—as "the neatest bit of class legislation ever devised." The statement is true, but not in the sense he means. The Act, as a matter of fact, represents the high-water mark of the British State's recognition of Trade Unionism. From its first clause to the final paragraph of its Second Schedule it is trade union legislation.

From that blunder the delegate proceeds to another. He says that "the trade union officials—one cannot term them leaders—have been hypnotised into bartering away the rights of the rank and file without so much as consulting them." As the writer is an engineer it is not unreasonably to be assumed that when he wrote these words he was thinking only of his own class. That being so, we feel at liberty to suggest that once more he does not know what he is talking about. The members of the Amalgamated Society of Engineers have been balloted on the Shells and Fuses Agreement and the Treasury Agreement, which are the bases of the Munitions Act, and by large majorities they have accepted both. So that it is not true to say that the rank and file of engineering have not been consulted on the subject.

"Men are being called upon to enrol themselves as volunteers and render their best service," the delegate goes on to say, "whilst the employer whose service they are leaving can please himself about re-employing the men at the termination of the war." Of course, he can, and nobody will gainsay his right to do so. What would this delegate say if the Act laid upon volunteers an obligation to return to their original employments at the end of the war? He would, we are afraid, be angrier than ever, and to be frank, we should not have it in our hearts to blame him. Paragraph 3 of the Second Schedule of the Act goes as far as it is fair to go in the direction indicated. Yet, according to this official, unless the position of the volunteer "is safeguarded by amendment one can only look upon the Bill, its authors and sponsors, as an industrial calamity."

The fact that twice within ten lines the writer falls foul of the Trade Unionists who signed the Treasury Agreement and approved the memorandum of the National Advisory Committee suggests that he is a rather ill-informed critic. As a matter of fact, it proves that he is, for it is well-known in inner Labour circles that instead of being "hypnotised" by the Minister of Munitions and, while under the spell, induced to barter away the rights of the rank and

file, the National Advisory Committee compelled him to adopt the scheme which is embodied in the Act instead of one which in effect would have legalised industrial conscription. The Munitions of War Act is, in fact, their Act, and if they had not been able to induce the Government to accept it, Labour would, as Councillor Bonner pointed out at Southampton the other night, have had to put up with a good deal worse.

Candidly, we are surprised to find a criticism of this sort in an official publication like the Journal of the Amalgamated Society of Engineers. Moreover, we cannot see that it serves any worthy object to print allusions like this:—"Those addle-headed thinkers, parsons, prelates, editors and politicians, are still droning about the restriction of output—that men are wilfully delaying work to the detriment of those in the trenches." The public are not fools, and they know that men are not altogether free to take as much as they can out of machines. It is not, however, that kind of restriction about which the aforesaid "addle-headed thinkers" are concerned. The fact which they deplore is well within the knowledge of this critic. It is that until the passage of the Munitions Act, rows of machines were standing idle in many places because the trade unions would not allow semi-skilled men to operate them.

MARINE DIESEL ENGINE OPERATION.

AN interesting article entitled "The Operation of a Marine Diesel Engine" was contributed by Mr. E. N. Percy to the May issue of our contemporary, *International Marine Engineering*. As the author points out, for a given horse-power a marine Diesel engine compares favourably with a heavy slow-speed steam engine of the same power. The maintenance of rods, bearings and thrust is practically the same except that the workmanship is much finer and brasses must be worked much closer. The pressures are very high in a Diesel engine, running from 400 to 1,200 lb. per sq. in., but in consideration of the fact that for a given horse-power the cylinder is from one-third to one-fifth the diameter of a steam cylinder, the rods and bearings are about the same size as in a steam engine of the same power, although disproportionate apparently to the size of the cylinder.

In a Diesel engine, the author goes on to say, the bearings have a closer fit, whilst the same may be said of the pistons, the latter being usually $\frac{1}{160}$ in. smaller on top than at the bottom to allow for the expansion due to heat. This type of piston, having a taper fit, is not unknown in certain other types of engine, and has proved advantageous for the same reason as that for which it is adopted in a Diesel engine. Six to eight rings are used, having lapped joints, so that there is no possibility of leakage. Besides this a lubrication ring is employed to maintain the film of oil between the main rings and itself. Diesel engines are adapted for working either on the two or four-stroke cycles. The valve mechanism in the four-stroke engine is the finest mechanism imaginable, and the fuel inlet valve, whilst being built very heavily and operating against immense pressures, has a movement of only $\frac{1}{8}$ to $\frac{1}{4}$ in., and remains open from $\frac{1}{8}$ th of the stroke down to zero or the nearest cut off, the thickness of a piece of paper, requiring mechanism produced by the most accurate workmanship and the greatest care in adjustment.

The oil to these injection valves is pumped usually by a twin plunger, one plunger doing most of the work and discharging the excess oil through an escape valve back into the suction. The second plunger is somewhat smaller and accurately measures the amount of oil forced through the injection valve. On the largest engines these plungers are only about $\frac{1}{4}$ to $\frac{1}{2}$ in. in diam., and their stroke varies.

The oil is atomised by air pressure varying from 600 to 1,200 lb. per sq. in. according to the type of engine. This air is furnished by a three or four-stage compressor sometimes attached to the main engine and sometimes to an auxiliary engine, and in the more modern vessels to both. The air from the same compressor is stored

in steel bottles for starting purposes. The average marine Diesel engine carries enough compressed air to turn over for about 10 min. when starting.

The paper also deals with the inspection of Diesel engines, their maintenance, and other aspects of operation. An inspection of the main engine prior to turning over is somewhat similar to that of a steam engine. The crank pin and thrust are examined to see that the gear has been cleared away and the turning over disconnected. The main engine compressors are looked after in the same way and their discharge lines cleared to the reservoir. The pumps are worked by hand until the injection pipe and injection valves are filled as petcocks on these valves will show. The air pressure for atomisation is tested for effect, note being taken whether the petcocks throw solid oil or atomised oil. The jackets are tested for water and the various overflows from them inspected to make sure that they are all running. The overflow from each individual water-cooled valve is likewise inspected. The engine having been ascertained to be in condition for turning, the oil and air supplies being checked at each injection valve, and it having been positively ascertained that each part of the engine is supplied with water, the engine is ready to start. A glance at the gauge board shows the pressure of the oil fuel supplied, the atomising air pressure, the starting air pressure, the water pressure in the jacket and the condition of the various auxiliaries.

PUBLICATIONS RECEIVED.

[A short notice of any publication does not necessarily preclude the subsequent appearance of a longer review.]

Ship Form, Resistance and Screw Propulsion. By G. S. Baker. London: Constable & Co. $8\frac{1}{4}$ in. $\times$ $5\frac{1}{4}$ in. 245 pp. Cloth boards, 12s. 6d. net.

This admirable volume, by the Superintendent of the William Froude National Tank, is sure to find a ready acceptance by those interested in the subjects of resistance and propulsion. Many instructive papers have been given by Mr. Baker to the Institution of Naval Architects, which have had the effect of creating a wider interest in experimental work with ships' models. In the volume now under review, not only is the important work which he himself has accomplished referred to, but the cream of the results of other experimenters is incorporated.

Froude's constant system of notation is used for the presentation of results as the author considers that this affords the best means of making comparison of forms. A clear and concise explanation is given of these various constants, which should enable the readers readily to understand their significance and purpose. This explanation of Froude's constants is followed by a chapter dealing with streamline motion, which plays an important part in the resistance of ships. The experiments of D. W. Taylor are referred to, which showed that at the surface and along the ship's vertical sides, the streams follow the wave profile generally, but that those streams which pass beneath the turn of the bilge travel right under the ship, and turn in diagonally at the stern. Several sets of experiments made at the William Froude tank with a high-speed model, showed also that the stream lines never run in a horizontal plane.

In dealing with the subject of frictional resistance, the author points out that at very low speeds friction absorbs practically all the power required for towing a ship, but as wave making grows it becomes of less importance. The necessity for a clean and well-painted hull is indicated, and the very deleterious effect of fouling on a vessel's speed is pointed out. Many cases are on record of ships losing from $\frac{1}{2}$ to 2 knots in speed simply because of the foulness of their bottoms. Experiments performed in the Spezia tank are stated to have shown that the resistance of a surface covered with incrustations is five times that of a freshly-painted surface.

The subjects of eddy-making and waves and wave-making are dealt with comprehensively before the author passes on to the subject of ship model experiments. In this chapter the dimensions of the various experimental basins are given, as is also a diagrammatic sketch of a ship model towing apparatus. He then deals with the dimensions and forms of ship, and it is this particular section of the book which is of the greatest value to naval architects. Largely from his own experiments, valuable direction is given as to how to obtain the form of minimum resistance for any particular

type of ship. It is not suggested by this that if the instructions are followed that there would be no further necessity for tank tests, but rather that the designer would be guided to what should be tank tested. The resistance of a ship is determined to a great extent by (a) the shape of the curve of cross section area, including the longitudinal or prismatic co-efficient; (b) the extreme beam; (c) the normal waterline, particularly that of the fore body. There is for all moderate and low-speed vessels a certain length of entrance and of run which is necessary to avoid abnormal wave-making and eddy-making resistance. There are certain advantages to be gained by certain types of entrances and runs, depending on fullness and speed. The various factors which influence resistance are all thoroughly dealt with, and resistance curves in (c) form for many models of different proportions and fullnesses are given. A chapter is devoted to the subject of racing and other high-speed craft, whilst the very important subject of the effect of restricted water channels is extensively treated.

In the second part of the book the propeller problem is the theme, and in this the various theories of the screw are expanded. Propeller experiments in open water and when behind vessels, have been made in various establishments from which the screw for any assigned conditions can be arrived at. The work of R. E. Froude has been relied on by Mr. Baker for the determination of propeller dimensions, and Taylor's experiments on effect of such variables as thickness, shape of blade section, rake and skew back are referred to. The important subjects of hull efficiency, wake and thrust deduction are then discussed. The various types of machinery now being employed for the propulsion of ships are described, and the problem of cavitation is well treated. We wonder whether Mr. Baker is right in saying on page 213, that the effective pitch ratios equal 1.03 times the face pitch ratio; does this agree with the figures given by Mr. T. E. Abell in his 1910 paper?

It is impossible to do more than indicate the general contents of this interesting and instructive volume. It covers a wide field, and a great deal has been presented in a book which is neither bulky nor unwieldy. The really valuable portion is that which deals with the forms of ships, as so much that is presented is the result of the author's personal research. The writing is concise and clear, and in that respect will be welcomed by those who have tackled volumes and papers dealing with the same subject which were very difficult to comprehend.

THE BALTIC AND WHITE SEA CONFERENCE AFTER THE WAR.*

There can be no doubt that we are facing a revolution of the world which will have a far-reaching effect politically and commercially. International relations will be affected. Already many bonds have been severed, but it is safe to predict that the time will come when animosity and hatred will give way to reconciliation and that human beings, irrespective of nationality, will recognise that they have interests in common and are dependent upon each other. This was the basis of the formation of the Baltic and White Sea Conference. It represents eleven of the seafaring nations of Europe, and it is only natural that it should be directly affected by the war. No business people in the various countries are so dependent upon international trade as shipowners.

At the last meeting held in London there was a long and interesting discussion of the important question for shipowners relating to the international law at sea during times of war. This discussion resulted in resolutions:—

1. To abolish the right of capture and confiscation of private property at sea.
2. To limit contraband of war to include only articles used exclusively for warlike purposes.
3. To establish International Prize Courts.

These resolutions were unanimously and enthusiastically adopted by the meeting representing eleven nations of Europe. Since then we have unfortunately had the sad experience of the truth of the old saying that theory is one thing and practice another.

As time passed and experience was gained, it was, however, found that the Conference, like so many other institutions, was subject to the law of evolution. It became clear that the interests of ship-

owners would be better served if the Conference would concentrate its efforts on those reforms which were of more real and practical importance to shipowners—namely, to improve charter-parties, abolish abuses, such as address commission, and the like. The experience gained has fully confirmed the view that the Conference was justified in adopting this course. From a modest beginning, when the entered tonnage scarcely amounted to 1,000,000 tons, the total tonnage of the Conference now represents 4,500,000 tons.

Lately Archangel has attracted our special attention. It will be remembered that a delegation from the Conference visited this port last year for the purpose of investigating matters on the spot, and discussing them with the merchants. The result of this visit is embodied in the report which has been sent out to our members. Unfortunately our negotiations with the shippers in Archangel were broken off through the war, but the intention is to resume these as soon as peace has been restored. There is a large work in store for us here, which, however, promises a good result, thanks to the friendly reception we received from the shippers in Archangel.

Another important matter which also affects the shipowners is stevedoring conditions. In Sweden we have now for several years worked with the Swedish Shipowners' Association, on whose initiative the stevedoring associations were formed. With these associations the Conference works in harmony. We have also endeavoured to improve the stevedoring conditions in Russian ports, and they will continue to have our attention.

A reform, which it is hoped will offer great advantage for owners, is the proposed establishment of arbitration tribunals in England and Scotland for disputes under the Balteon charter. Such a tribunal has already been established for Scotland, and the intention is also to establish similar tribunals in English ports.

It will be seen that the Conference has a large field of operation, but there is still a vast field which is waiting for cultivation, namely, the reform of charter-parties. This work belongs to the Documentary Council.

It became more and more manifest to owners as the Conference developed that an apparently good rate of freight is rendered more or less illusory with a dirty charter. As a consequence, there was a steadily increasing demand for cleansing the charters from all such clauses as are partly ambiguous and partly detrimental to shipowners. At the same time a strong desire was manifested to introduce uniform charter-parties, the so-called standard charters.

As the first result of this desire may be mentioned the Balteon charter. This document was formulated and established by the Conference, and has been substituted for all former coal charters for the Baltic. It is evident that an owner who manages several ships cannot possibly find time to wade through the innumerable different charter-forms which are submitted to him. As a rule he will be caught in some trap or other. There is scarcely any owner who has not had bitter experience in this respect.

With these increasing demands for uniformity in shipping documents, it was recognised that it would be necessary to seek close co-operation with the protection and indemnity clubs. This led to the establishment of the Documentary Council.

As we know, similar co-operation has already existed for several years in England between the Chamber of Shipping and the British clubs, namely, the so-called Documentary Committee of the Chamber of Shipping. These two institutions, the Documentary Council and the Documentary Committee, have since co-operated, with the result that all the charters issued by the Documentary Committee have been adopted by the Documentary Council. It is now also proposed that the Documentary Council shall adopt the two last charters issued by the Documentary Committee, namely:—

River Plate Charter-party 1914, "Centrocon."

British North American (Atlantic) Wood Charter 1914, "Ben-acon."

A good start has thus been made. However, there are still a great number of charters which are waiting to be carried into effect. As

* Abstract of an Address delivered by Mr. J. F. Myhre before the Norwegian Shipowners' Association.

already mentioned, the Baltcon charter was established before the Documentary Council came into existence, but experience has shown that this document requires to be improved upon in more respects than one. It is therefore proposed to take this charter up for revision. Of other charters taken in hand, the introduction of which has been delayed owing to the war, may be mentioned:— (1) Wood charter for France; (2) wood charter for Belgium; (3) general charter; (4) grain charter for Baltic ports. Besides, it was resolved at the general meeting of the Documentary Council in London to establish a lump sum charter for roundwood cargoes (pit props, pulp wood, &c.). The work with these documents will be resumed when peace is restored. Further, there should be mentioned our time charter (Balttime), which has proved to be such a very useful document for owners.

Since the war broke out so many questions have cropped up which in times of peace were never raised at all. For instance, there is the question as to whether the negligence clause entitles owners to break the contract; the difference between absolute and conditional contraband; interpretation of blockade and war clauses, &c. All these questions will necessarily be included in the work of the Documentary Council after the war. Doubtless many other points arising out of the experience gained during the war will also be raised in order to protect owners.

PORT CHARGES AT NEW ORLEANS.

The Board of Commissioners of the port of New Orleans has made public the report of its engineers on the subject of port charges.

Discussing port-rate systems, the report considers that a port may be administered with the general public welfare as the first consideration, or as a State or municipal utility not operated for profit, or as privately-owned terminals controlled by steamship lines and railways. It states the policy of the port of New Orleans as being "that such reasonable and equitable charges be made against the general users of the port facilities as will return revenues to meet all operating expenses, interest on investment, depreciation, and a reasonable surplus for unforeseen expenses, and such current ordinary improvements in the facilities as conditions may justify."

In the past the port charges at New Orleans have been levied entirely against the ship, in the form of wharfage and shed charges based on the tonnage of the vessel. This has caused shipowners to look on this as an expensive port, while yielding a relatively low return to the dock commission. This investigation was undertaken with the view of working out a scientific scheme of harbour charges which, while yielding more revenue, would reduce the direct charge against the vessel. It is now proposed to divide the charges between the three parties at interest in the service rendered at the port, viz.: The ship, which must have adequate and safe dockage space in which to berth while loading or discharging or lying idle for repairs; the shipping agent, who must have ample wharf space, with sheds where necessary, on which to collect outward cargo and to sort and deliver inward cargo; the shipper—consignee, railroad, or consignor—represented by the commodities making up the cargoes passing over the wharves.

In accordance with this plan, the engineers recommend a charge of rent to be paid by steamship agents for preferential assignment of wharf and shed space, a dockage charge against the vessels using the wharves, and tolls on the cargo passing over the wharves. It is proposed that wharf space be assigned to steamship agents at a rental of 3 mills per sq. ft. per month for uncovered wharves, and 3.5 mills per month for wharves covered with steel sheds. Certain sections of the wharf area, both with and without sheds, will be kept "open" for the accommodation of tramps or irregular vessels.

A novel system of dockage charges is proposed for vessels, based on the gross register tonnage of the vessel multiplied by the number of hours it occupies the wharf. For vessels lying at assigned wharves

the charge recommended is 18 c. per 1,000 ship-ton hours (abbreviated m.s.t.h.) and for those lying at unassigned wharves 28 c. per m.s.t.h. This charge is levied against vessels loading with reasonable speed, which is calculated at $3\frac{1}{4}$ short tons of cargo per hour of a 24-hour day per 1,000 gross tons of ship. When a vessel fails to load as fast as this, 12 c. per m.s.t.h. is added for the excess time. There is no limit to the length of time a vessel may lie at a wharf beyond this penalty charge, which begins to pile up as soon as a reasonable time has expired. Provision is made for berthing idle vessels at non-active places along the wharves at a charge of 10 c. per m.s.t.h.

It is suggested that the tolls on commodities passing over the wharves be approximately 10 c. per 40 cubic ft. On this basis a schedule of charges for various commodities has been drawn up in cents per unit of measure, with the charge for "all other articles" placed at $1\frac{1}{2}$ c. per 100 lb. On the unassigned wharves outward-bound cargo is charged demurrage of one-fourth of the tolls for every day in excess of 10 days that it remains on the wharf, and inward-bound cargo the same per diem for delays beyond three days after the steamer has finished discharging.

DECLARATION OF LONDON: ITALIAN DECREE.

We have received from the Foreign Office the following translation of a Royal Decree, dated June 3 last, and published in the Italian Official Gazette of June 15:—

ARTICLE I.

During the present state of war the Government of the King will adopt and enforce the dispositions of the Declarations signed at London on February 26, 1909, with the exception of Articles 22, 24 and 28, and of any modifications contained in the following articles:—

ARTICLE II.

A neutral ship, which according to her papers has a neutral destination, and which in spite of the destination indicated on her papers is making an enemy port, will be subject to capture and confiscation if she is encountered before the end of her return journey.

ARTICLE III.

The destination indicated in Article 33 of the Declaration of London will be presumed to be the real one (in addition to the presumptions provided for in Article 34) if the cargo is consigned to an agent of an enemy State or to order of an agent of an enemy State.

ARTICLE IV.

In spite of the dispositions of Article 35 of the Declaration of London, conditional contraband will be subject to capture on board a vessel proceeding to a neutral port if the ship's manifests do not indicate the name of the consignee, or if they show that the consignee resides in territory belonging to or occupied by the enemy.

ARTICLE V.

In the cases indicated in the preceding Article IV. the burden of proving the innocent destination of the goods rests with their owner.

ARTICLE VI.

When the King's Government learns that an enemy Government is supplying its armed forces by means of or across a neutral country, the Ministers of Foreign Affairs and Marine may take concerted action to exclude from the operation of Article 35 of the Declaration of London all vessels proceeding to ports in such countries.

Decisions of this nature will be published in the Official Gazette, and will be enforced until superseded by another decision of the same nature.

For the whole period during which such decisions are in force, vessels carrying conditional contraband to ports of such countries will be liable to capture.

"PEKING MARU."

THE FIRST OF A SERIES OF JAPANESE-REGISTERED "ISHERWOOD" SHIPS.

The *Peking Maru*, drawings of which are published in this issue, is the first of a long series of ships built or building in Japan on the Isherwood longitudinal system. The vessel has been constructed at the Sakurajima yard of the Osaka Ironworks for the Osaka Shosen Kabushiki Kaisha, and is of the following dimensions:

Length over	311 ft.
... between perpendiculars	300 ft.
Breadth, extreme	44 ft.
... at beam	43 ft. 9 in.
Depth, measured to upper deck	27 ft. 3 in.
Height of poop, bridge and fore-castle (top of beam to top of beam)	7 ft.
Mean draught with 5,000 tons d.w., including consumable stores	23 ft.
Speed loaded on trial with 5,000 tons d.w.	16 knots.
... on trial with 5,000 tons d.w.	15.181 gross, 14.972 net.

The *Peking Maru* has been built as a general cargo carrier, and is a single-screw ship of the two-deck, with poop, bridge and fore-castle type. The vessel was constructed under special survey to plans approved by Lloyd's Register, and in accordance with the Zosenreiho, and complies with the Zosenkai and Kenseikai as a first-class ocean-going freighter, under the Japanese Government's special surveys during her construction.

The main features of the vessel will be seen from the general arrangement drawings herewith, and the details concerning her construction and particulars regarding scantlings and other matters appertaining to her classification will be found on the midship sections on page 50.

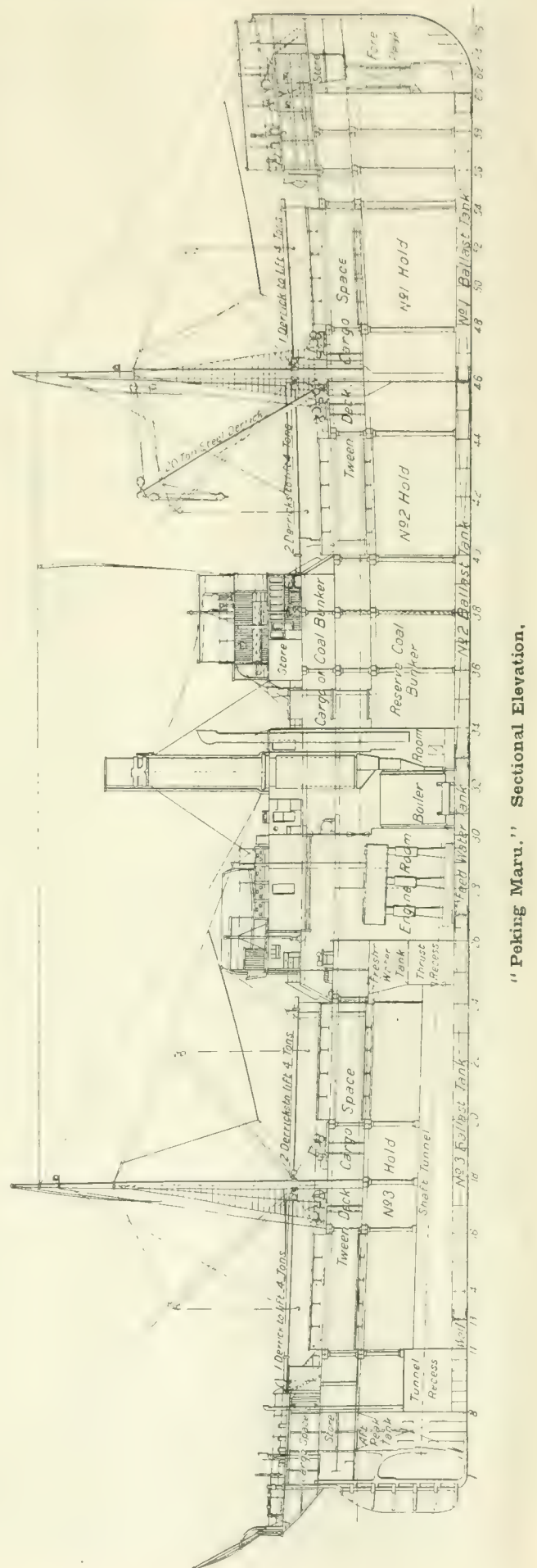
The engineers and officers are housed amidships, and the firemen and seamen in the fore-castle, there being no crew accommodation aft. The cabin accommodation consists of saloon, spare room, engineers' mess room, tally office, rooms for captain, officers, engineers, saloon steward, and so on, with bathrooms for the officers and engineers. The saloon is panelled in polished hard wood, and has the usual furnishings. The wood deck over the cabins is beaded but no beam covering or ceiling panelling or lining has been fitted, it being the object to leave as much of the steel work exposed as possible. Electric light is fitted throughout the cabins as in other parts of the ship.

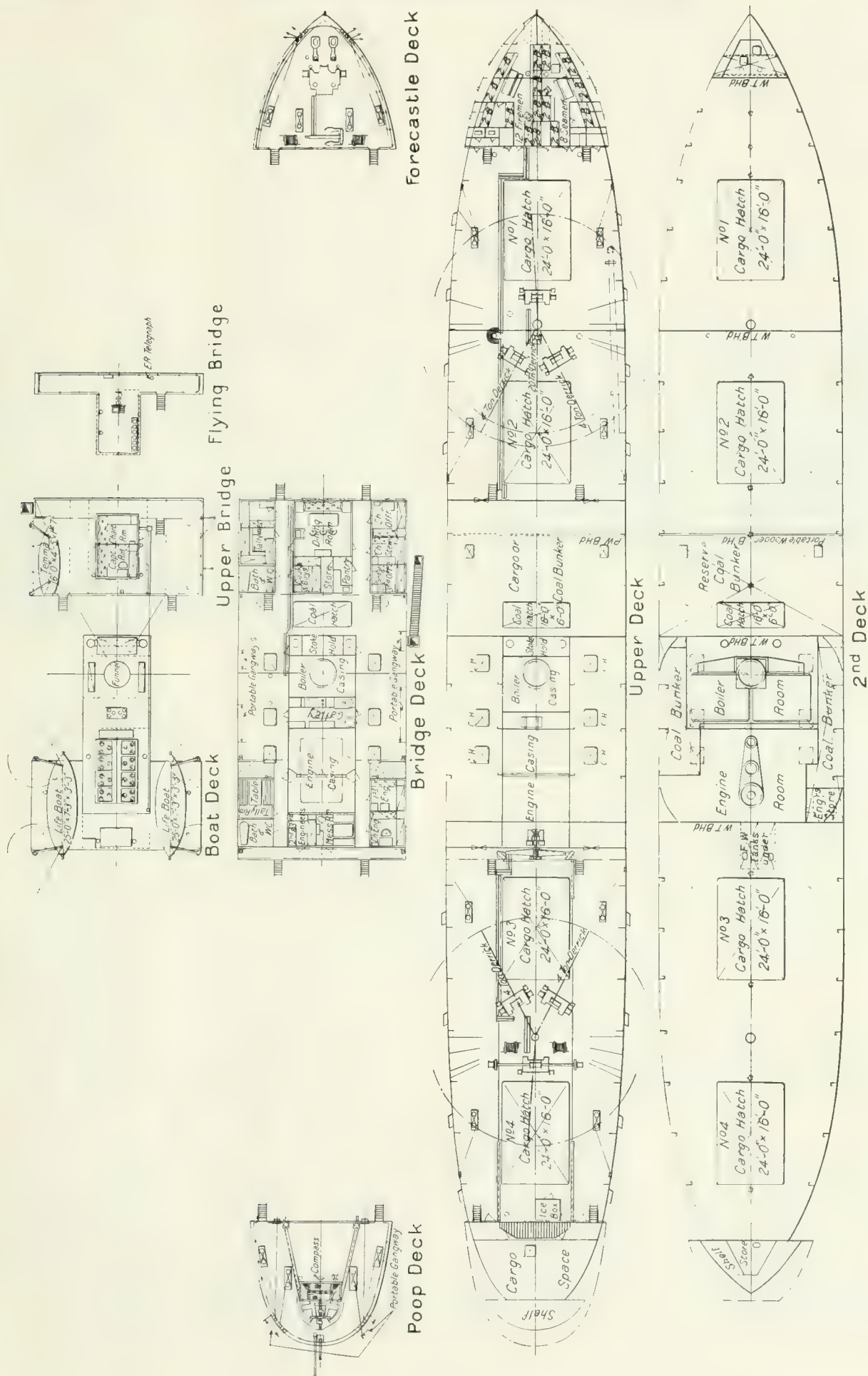
The permanent bunker capacity is 300 tons, in addition to which ample provision is made for carrying a large reserve. The two fresh-water tanks have a total capacity of 4,000 gallons.

The cargo handling appliances include six derricks of 4-ton lifting capacity with one derrick forward to lift 20 tons. There are six winches of the double-cylinder horizontal type with cylinders 7 by 10 in. Steam steering gear has been fitted.

The machinery consists of triple-expansion engines 22, 37 and 61 in. in diam. with a stroke of 24 in. with the usual auxiliaries. There are two boilers of the cylindrical multitubular type 13 ft. 6 in. in diam. by 11 ft. 6 in. long with a working pressure of 180 lb. There are six furnaces 3 ft. 4½ in. external diam. at mouth, the boiler tubes being 3 in. external diam., plain tubes 8 W.G. thick. Howden's forced draught system has been installed.

ARCHANGEL PORT DIFFICULTIES.—On the question of using the Archangel route, the Minister of Trade and Industry has notified the Moscow Bourse Committee that although the discharge of private goods at Archangel port will not be prohibited, they may doubtless meet with serious difficulties, as with the immense quantity of Government goods, almost all the deep-water quays will be taken up, as well as the stores and sheds, the whole of which must be at the disposition of Government goods. Also in respect to exports from Archangel, the use of private boats on the river cannot be counted on, as a large proportion of the river fleet must remain at the disposition of the Government traffic service.





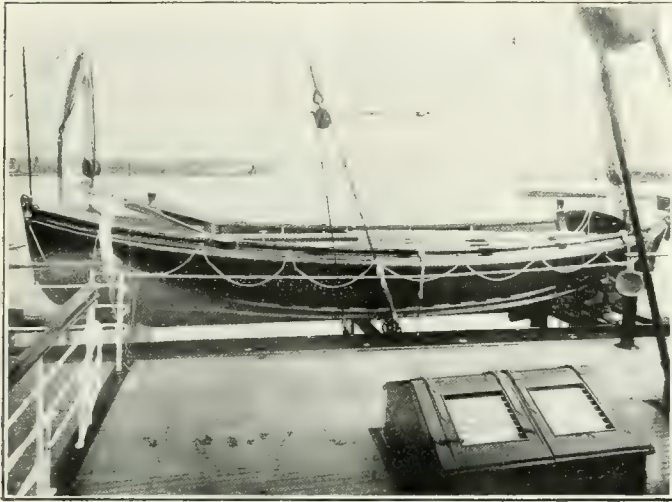
Deck Plans of the "Peking Maru." Built on the Isherwood System by the Osaka Ironworks for the Osaka Shosen Kaisha.

• 22 •

"Peking Maru." Midship Section and Details. (See page 48.)

A LIFEBOAT FOR A PRIVATE YACHT.

We illustrate herewith a lifeboat recently designed by Messrs. G. L. Watson & Co., Glasgow, for a yacht. The boat is decked and the planking is double skin mahogany. The boat has a water-tight end box forward and also aft, these supplying additional buoyancy and keeping the boat dry in the case of head or following seas. There are flotation cases fitted in the hold below deck as well as those above deck. The deck valves are ample to clear any sea which may break over her. A substantial belting of cork covered with canvas runs round the sides. The disengaging gear is Robinson's.



View of Lifeboat housed on Upper Promenade.

The vessel has an iron keel and a complete outfit, including a sea anchor or drogue—one of the most important parts of a

SCREW TUG "SCOOP."

The accompanying illustration is of a small screw steam tug recently completed by Messrs. Edward Hayes, Watling Works, Stony Stratford, for work at Rochester. The vessel has the following dimensions:—

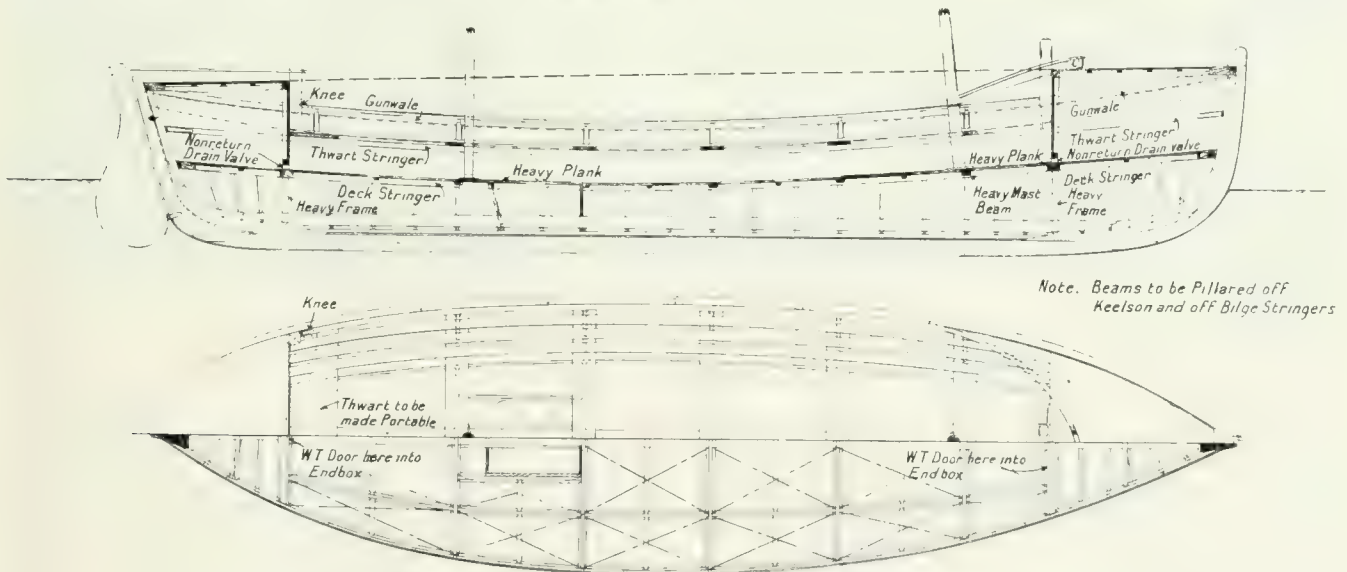
Length	51 ft.
Beam	11 ft.
Draught	4 ft.

The skin plating is $\frac{1}{4}$ and $\frac{3}{16}$ in. full and bare in thickness, the frames being of steel, 2 by 2 in. on bulkheads, and $1\frac{1}{2}$ by $1\frac{1}{2}$ in. elsewhere. There are four steel bulkheads fitted with brass sluice doors and manholes, and the steel floors are of exceptional depth throughout, to give strength to the underwater body, and to minimise vibration. Forward of the collision bulkhead there is



Tug "Scoop," built by Edward Hayes, Stony Stratford for work at Rochester.

the anchor cable locker only; between this and the boiler bulkhead there is a large cabin. No port-holes are fitted, this being a stipulation of the purchasers, but the cabin is well lighted from the top, and is efficiently ventilated. This cabin is fitted with cupboards, lockers, a large folding teak table, and seats that can be used as



General Arrangement of Lifeboat designed by G. L. Watson & Co., Glasgow, for a Private Yacht.

lifeboat's equipment. The two masts carry a lugsail each, and there is also a main staysail.

It will be noted from the illustration that the boat is placed well outboard with the davits as near the extremities as practicable.

The death is announced of Mr. Henry Deacon, who for some 40 years was connected with Messrs. Nixon's Navigation Company, Cardiff. He retired some years ago.

bunks. The stairway is of jarrah wood. This is a most comfortable cabin compared with those usually found on a tug, there being ample headroom and comfort.

Aft of the cabin, between two bulkheads, is the machinery space. The main engine is one of Messrs. Hayes's standard compound surface condensing open front type, having cylinders 8 and 16 in. diam. by 10-in. stroke. The crankshaft is well balanced and was cut from a solid piece of Siemens-Martin mild steel, the bearing

surfaces throughout being ample, and the whole engine built with a view to withstanding the hardest use. Automatic lubrication and water service are both fitted. The air, circulating, feed and bilge pumps work by long rocking levers on the port side of the engine, and the condenser is also on the same bedplate. The latter has a specially large cooling surface. The boiler is of the marine return tube type, built under Lloyd's Survey for a working pressure of 120 lb. per sq. in., and has extra large heating and grate surface, which give ample steaming power. A bilge ejector and an auxiliary feed pump for boiler are fitted in the engine room.

All the deck woodwork, such as the skylights, companion, aft hatch, pilot screen, &c., is of teak. There is a large storeroom aft, which is also arranged with bunk seats to sleep extra hands if required. A patent towing ship-hook is mounted aft of the engine

M.S. "SAN FRANCISCO."

Trials have been run of the motor ship *San Francisco* (illustrated herewith), which has been built by Messrs. Burmeister & Wain, Copenhagen, for the Rederiaktiebolaget Nordstjernan, of Stockholm.

The first motor ship for the Nordstjernan Company, the *Suecia*, was built in 1912, and at the same time this firm took an option for building five more motor ships should the results with the *Suecia* be satisfactory. All these ships have now been built and, moreover, the owners have now ordered four more motor ships.

The *San Francisco* has the same dimensions as the other ships for this firm, namely:

Length, l.p.	...	...	...	...	362 ft.
Breadth	...	...	...	...	51 ft. 3 in.
Depth from awning deck	...	...	...	...	34 ft.
D.w. capacity	...	...	...	...	6,550 tons.



Motor Ship "San Francisco," built and engined by Burmeister & Wain, Copenhagen, for the Nordstjernan Company of Stockholm.

bulkhead, on a stout oak post, which fits into steps worked into the construction of the hull making it very stiff, and a towing bow is placed aft. The steering gear is arranged inside the pilot screen. It comprises a teak steering wheel with a weatherproof standard, a speaking-tube with whistles to the engineer, and a signal gong.

A mast, fitted in tabernacle, with complete outfit of navigation, cabin and engine-room lamps is supplied. The vessel is also fitted with a galvanised feed water tank of about 150 gall. capacity, with all connections to donkey pump.

Fore and aft of the keel was fitted with steel covering plates, to afford further protection in case of grounding. There were also sundry other arrangements on the vessel to meet the special requirements of purchasers.

On trials, which were run on the Thames, the mean speed of a little over 12 m.p.h. was obtained, this being a mile above the contract speed.

The *San Francisco* is a twin screw vessel with two four-stroke single-acting main engines, each having six cylinders and capable of developing as normal load continuously 2,000 i.h.p., which will give the ship a speed of 10 knots. The ship is also fitted with two auxiliary engines each developing 200 b.h.p., which drive the air pumps and the dynamos for working all the auxiliary machinery, steering gear and current for electric light.

During the trial trip the vessel attained a speed of 10.62 knots at 1,885 i.h.p. and 51 r.p.m. The consumption of fuel oil was on an average 265.35 kg.-hour with 1,863 i.h.p. on the main engines, or a consumption of 0.143 kg. of fuel oil per indicated horse-power-hour of the main engines, including the consumption for all the auxiliary machinery. The mechanical efficiency of the main engines in the testing shop was found to be 0.85, the consumption per brake horse-power of the main engines thus being 0.168 kg. The fuel was solar oil.

GENERAL NEWS SECTION.

PERSONAL.

Lieut. Robert Brown, R.N.R., who was recently awarded the Distinguished Service Cross in connection with the heroic feats accomplished by submarine *E11*, was before the outbreak of war second officer with Messrs. Alfred Holt & Co.

The directors of the Marine and General Mutual Life Assurance Society announce that Sir Frederick Green has accepted the office of Chairman, in succession to Mr. H. W. Forster, M.P., who has recently joined the Government and has vacated his seat at the Board.

An interesting ceremony took place last week at the Liverpool offices of the Imperial Merchant Service Guild, when the Committee of Management presented to the Guild's Secretary, Lieutenant T. W. Moore, R.N.R., F.R.G.S., a handsomely mounted sword, as a token of their appreciation that an honorary lieutenancy in the R.N.R. has been conferred upon him by the Admiralty. Since the outbreak of war Lieutenant Moore has enabled the Guild to recruit over 1,000 officers for the Royal Naval Services. Captain A. B. Toms, Chairman of the Guild, made the presentation, and he was supported in his congratulatory references to the splendid work done for the Admiralty by Lieutenant Moore by the senior naval officer at Liverpool, Rear-Admiral H. H. Stileman, R.N.

Mr. Albert Vickers (Vickers Ltd.), the Chairman of the Executive Committee of the National Movement in connection with the Russian Flag Day, has received a cable from Petrograd intimating that at Tsarskoye Selo, Sir George Buchanan presented General Balinsky and Dr. Paul Dvorkovitz to Her Imperial Majesty the Russian Empress, to whom they handed 100,000 roubles (£10,000) as the first instalment of the moneys collected in the United Kingdom for alleviating the sufferings of the Russian wounded soldiers.

The Imperial Merchant Service Guild have received from the Royal Humane Society a diploma on vellum and the bronze clasp of the Society for presentation to their member, Mr. Stewart F. Swan, who, whilst Chief Officer of the *Innisfallen*, jumped overboard and rescued a passenger named Denis McAuliffe, of 129, Colby Road, Burry Port, who had fallen overboard at 10.45 p.m. on the night of May 11 last. Mr. Swan was in his room when he heard the shout of "man overboard"; he rushed out and without hesitation jumped into the water and held up the passenger until they were picked up by a small boat. The water was intensely cold, and Mr. Swan and the rescued man suffered greatly from their

submersion. About 18 months ago it was brought to the notice of the Guild that Mr. Swan had saved the life of a lady passenger who fell overboard from his steamer whilst the vessel was lying in Cork Harbour. Upon that occasion the Guild made representations to the Royal Humane Society, and Mr. Swan was awarded the bronze clasp.

The death has occurred at West Ferry of Mr. Joseph Gibson, ship and marine assurance broker, Dundee, at the age of 83. Mr. Gibson was closely associated with whaling enterprise. He was also interested in the movement about 20 years ago of sending ships to attempt whaling in the Antarctic. Four of the fleet went south, but on account of their want of success the experiment was not repeated.

To encourage the men employed in the iron and cable works, collieries, and blast furnaces belonging to Messrs. N. Hingley & Sons,

Ltd., to promote thrift, and also as a mark of his life-long association with the Netherton Company, Sir George Hingley, head of the firm, has decided to offer every man who is over the age of 20, and has been with the company for a period of not less than 12 months, one-tenth value of a £5 bond in the National War Loan. He has arranged with the company that the balance of the money should be advanced, where necessary, to be repaid gradually.

By his heroic action in saving the Nitrate Producers Steamship Company's steamer, *Anglo-Californian*, Captain A. Parslow lost his life. The story is one of the finest in the traditions of the service. The *Anglo-Californian* was being pursued by a German submarine off the South Coast of

Ireland, and although the vessel's speed had been pressed to 13½ knots the submarine was fast overhauling her, shells falling on the steamer the while. After a long delay, in response to urgent messages from the steamer, a "wireless" was received from two destroyers urging him to hold on until their arrival. Meanwhile the submarine was subjecting the steamer to a fusillade, and Captain Parslow lay full length on the bridge to take cover. His son was at the wheel and he also adopted the same attitude, working the wheel by the lower spokes. It was in the course of standing up to take observations that the captain was struck by a shell and killed outright. His son manfully continued the navigation of the vessel in spite of the awful spectacle of his father lying dead before his eyes. Eventually the destroyers came up to the *Anglo-Californian* and the submarine disappeared. The vessel was valued with her cargo at about £200,000, and we learn that special action is being taken at Lloyd's to mark in some particular manner the magnificent heroism displayed by the captain and crew. Captain Parslow had been in the service of the owners for some 20 years.



Captain A. B. Toms. Captain D. H. Bernard. Lieutenant T. W. Moore, R.N.R.
Rear-Admiral H. H. Stileman, R.N.

Lieutenant T. W. Moore, R.N.R., Secretary of the Imperial Merchant Service Guild, being presented with a Sword on behalf of the Guild by its Chairman, Captain A. B. Toms.

FROM OUR CORRESPONDENTS.

CLYDE AND DISTRICT.

(FROM OUR OWN CORRESPONDENT.)

Glasgow.

The revenue of the Clyde Navigation Trust has gone on expanding from year to year with comparatively little interruption during the lifetime of the present generation, and now, after nearly a year of war, and to some extent interruption of trade, there is no sign of a retrograde movement so far as the finances of the Trust are concerned. The revenue of the harbour and docks at Glasgow for the year ended on June 30 last amounted to £647,669, or an increase of nearly £14,000 over the revenue of the preceding year, which, in turn, showed an advance of £8,931 on that of 1912-13. The revenue for the year just closed constitutes a record in the history of the Trust. Although there has been no falling-off in trade there has been a considerable readjustment of the overseas traffic to and from the Clyde. Certain trades which were fairly important previous to the war have almost entirely disappeared, while others have sprung into prominence as a direct result of the war. It is doubtful, however, if the Trustees would have been in the satisfactory financial position in which they find themselves, if they had not some months ago raised their rates on goods and shipping by 15 per cent. in order to meet the increased cost of commodities and labour.

GLASGOW AND RUSSIAN TRADE.

A steady volume of trade has been carried on between the Clyde and Archangel ever since the latter port became free from ice in May. Vessels leave Glasgow regularly, carrying for most part general cargo, and last week a full cargo of timber arrived in the Clyde from the White Sea port, the steamer which brought it in being of Norwegian nationality. One of the leading firms in the Archangel trade—Messrs. Leopold Walford & Co. (Glasgow)—applied to the Clyde Trust recently for suitable berthage with rail and shed accommodation to be set aside specially for their trades between Glasgow and Archangel and the Mediterranean ports. Although the Trustees have already a certain amount of their berthage appropriated by individual firms for special trades, they were unable to accede to Messrs. Walford's request as they have at present no berthage available, but the harbourmaster has been instructed to do his best to meet the requirements of this trade which has developed to a considerable extent since the war began.

QUICK DISCHARGE AT FORTH PORTS.

Since the system of discharging grain by elevator was introduced at Leith the port has had an excellent reputation for the quick despatch which is given to vessels with cargoes of that kind. Last week the Dock Commission's combined bucket and pneumatic elevator discharged from the steamer *Vauxhall*, which arrived from Montreal, 5,550 tons of wheat in 39 hours, being an average of 142 tons per hour, or 1,400 tons per ordinary working day. The neighbouring port of Granton has also established a record for the port by the quick discharge of 1,250 tons of Algerian esparto grass in less than three working days, from the steamer *Joachim B. Lund*. In this case Messrs. McKelvie & Co. acted as stevedores.

THE NORTH-EAST COAST.

(FROM OUR OWN CORRESPONDENT.)

Newcastle-on-Tyne.

The only change in the shipbuilding position is the further rise in the price of material, iron ship plates having just recently been advanced to £10 10s. per ton, iron ship angles to £11, iron ship rivets to £13 10s., steel ship plates £10 10s., steel ship angles £10 5s., and steel boiler plates £11 10s. per ton. All branches of the manufactured iron and steel trades are working at high pressure and deliveries are difficult to book up. The effect of the war upon the export trade of the Tyne is well exemplified in the half-yearly return, just issued, of the Tyne Improvement Commission. It appears that during the six months ended June 30, 6,973,095 tons of coal and 141,851 tons of coke were shipped, as compared with 10,105,223 tons of coal and 174,348 tons of coke during the corresponding period of last year, decreases of 3,132,128 tons of coal and 32,497 tons of coke. In comparing the past half-year's figures regard should be paid to the fact that over 30,000 Durham miners

and 14,000 Northumberland miners are now serving with the Colours, and this has had a great effect in the reduction of the output from the collieries, whilst further difficulties have arisen from the trouble necessary in the securing of export licences. The figures for Blyth during the past half-year show that the arrivals were 1,209 vessels of 754,388 tonnage, as compared with 1,691 vessels of 1,118,811 tons, whilst the sailings were 1,206 vessels of 763,081 tons and 1,585 vessels of 1,106,791 tons. The exports of coal for the past six months amounted to 1,529,976 tons, as against 2,339,733 tons.

MERSEY SHIPPING AND SHIPBUILDING.

(FROM OUR OWN CORRESPONDENT.)

Liverpool.

The Mersey Docks and Harbour Board, who recently applied for the services of Mr. S. G. Gamble, Divisional Officer of the South London Fire Brigade, to investigate the circumstances of the big fire at the Stanley Dock tobacco warehouses at Liverpool, have just notified the London County Council that Mr. Gamble has rendered valuable advice and assistance to the Board's officers, and that they had forwarded to him an inscribed silver salver in recognition of his services in the matter.

The Mersey ship-repairing yards continue to handle a vast amount of repair work not only in their own shops but in the large number of graving docks on both sides of the river; indeed, the demand for berths in the latter has at times recently caused a waiting turn. The most noteworthy repair jobs at present in hand are the Harrison liner *Wayfarer*, and the steamer *Nebraskan*, both of which were torpedoed by German submarines, and are being repaired and overhauled by Messrs. H. & C. Grayson, Ltd.

The directors of the Leyland Line have been able to realise their hope, expressed at the shareholders' meeting in April of clearing off the remaining arrears of preference dividend, and with the payment this month of £2 per share, equal to 20 per cent., the arrears wholly disappear. During the last 3½ years dividend arrears have been paid amounting to 60 per cent., besides wiping out the debit balance of £120,000, and what is more satisfactory still the ordinary shareholders are to receive their first dividend since 1901 of 3 per cent.

The beginning of the second half of the year has seen the renewal of many coal contracts by steamship lines, and some of these are noteworthy. With the likelihood of a prolonged war and for a long time to come of dearth of coal, even if the contrary be happily experienced, there have been many contracts made for 12 months ahead, on the basis of 19s. per ton for Lancashire, 20s. for Yorkshire and 21s. for North Wales, the latter for delivery at Birkenhead.

SOUTH WALES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Cardiff.

Coal shipping was brought to a standstill at Swansea by a dispute between the tippers and the Harbour Trust. The men allege that the tips taken over by the Trust from the railway companies were given preference over the other tips, and ceased work on Thursday last, which, as a result, left the coal trimmers no alternative but to "down tools" and as a consequence about 600 men were idle. At the Harbour Trust tips the men are paid direct, but at the other tips their earnings are pooled, and thus any preferential treatment as regards the placing of the work would affect the amount of wages accruing to the tippers. The tippers allege that a large vessel was allowed to discharge at the Harbour Trust tip, while two of the railway tips were idle, and also that small vessels were discharged at the railway tips. Mr. William Law, Manager of the Swansea Harbour Trust, denies the allegation of preferential treatment at their tips, and contends that the trouble is amongst the men themselves.

Although the men returned to work on Monday, pending negotiations, no fewer than 17 partly laden vessels had in the meantime been held up.

JUNE DRY DOCKINGS.

During the past month, 185 vessels of 507,349 gross tons were dry-docked in South Wales, compared with 157 vessels of 479,773 tons in the same month of 1914, an increase of 28 vessels of 27,576 tons. Throughout the month ship-repairers generally were actively employed, and one of the chief difficulties of employers was to find

sufficient labour to cope with requirements. At each individual port the number of vessels docked registered an advance, while their tonnage at Cardiff, Newport and Port Talbot increased, but Swansea and Barry both showed declines. Figures for each port are as follows:—

Port.	June, 1914.		June, 1915.	
	Vessels.	Gross Tons.	Vessels.	Gross Tons.
Cardiff ...	73	231,616	80	238,276
Swansea ...	18	38,270	23	34,512
Newport ...	29	80,768	41	106,466
Barry ...	34	128,023	37	115,362
Port Talbot ...	3	1,096	4	12,733
Totals ...	157	479,773	185	507,349

The above figures do not include wet dock repairs, which constitute a considerable proportion of ship repairing.

SHIP REPAIRING.

Active conditions pervade the Welsh ship-repairing industry, and what is more satisfactory is the fact that practically every concern is having a fair share of the work. However, as several very heavy jobs are in hand, particulars of which have already been given in these notes, there is little that is new to chronicle.

At Cardiff the Channel Dry Docks & Pontoon Company, Ltd., have just taken in hand the steamer *Braunton* for an extensive overhaul.

THE FREIGHT MARKETS.

(FROM OUR OWN CORRESPONDENTS.)

London.

Apart from the spurt in the chartering of vessels for coals from America to Italy, there has been a general dearth of animation in the various sections of the freight market. Little is passing in the way of grain from the United States, and the Plate section maintains its quietness. The Eastern markets remain steady. During the last day or two there has been some revival in the demand for tonnage on time charter. The *Hercules* has 13s. for one round trip, States-South America, and the *Ardgryfe* has a similar rate for Transatlantic trading. An East Coast-Archangel round has been closed at 20s. for a 3,500-ton vessel, and further tonnage could be fixed for this business. Eastern business finds representation in the fixture of a 7,000-ton steamer from Bombay at 52s. 6d. on d.w. to the United Kingdom, whilst from Karachi another 7,000-tonner, the *Roath*, has 43s. 6d., less 2 per cent. On Government account, the *Arosa* has 44s., August 10 cancelling, to the United Kingdom, Mersey ports and London excluded. American coal operators have done a large business, and 34s. 6d. to 35s. can be had to the Plate. To West Italy a prompt loading vessel has 35s. For three consecutive voyages from Virginia to West Italy and/or Sicily, the steamers *Strathavon* and *Tiverton* have been conceded 40s. 6d. Quietness rules in the Plate section, and owners continue firmly to hold their tonnage in the expectation of better rates prevailing. The *Ethelstan*, 5,800 tons, 10 per cent., has been closed at 60s., San Lorenzo to north of Hull, August 25 cancelling. Also from San Lorenzo, the *Warrior*, 5,200, 10 per cent., has been fixed at 57s. 6d. to the United Kingdom, August 25. There is a request for tonnage from Puget Sound to the United Kingdom at 160s. per mille. The North African ports have exhibited dullness. For barley from Tunis 20s. to 21s. 6d. is bid to the United Kingdom. From Alexandria, the *Virent*, 320,000 cubic ft., has been fixed at 20s. per 60 cubic ft., prompt loading, for Hull. From the Tyne, chartering has been of a slow description and the supply of boats about equals the demand. Little fluctuation has taken place in the level of rates. Representative fixtures are:—Tyne to London, 7s. 3d.; Caen, option Honfleur, 14s.; La Rochelle, 18s.; and Rouen, 15s. Hartlepool to Bordeaux has paid 20s. The week opened with a fair amount of activity in chartering at Cardiff. Fixtures recorded include:—Honfleur, 12s.; Rouen, 13s. 3d. and 13s. 6d.; Bordeaux, 18½ fr.; and Piræus, 25s. From Glasgow, the *Mervyn* has been conceded 16s. 6d. to La Rochelle. Hull to Rouen has been done at 15s.

Glasgow.

Owing to the near approach of the annual holidays the Glasgow market has been unusually dull and inactive. There was, however, some demand for coal carrying steamers for France and the Mediterranean, and for a short time prior to the stoppage of work, there was quite a number of vessels on the turn both at the Clyde and at Firth of Forth ports. The following were among the fixtures reported in this trade:—Fife port to Rouen, 1,250 tons, 15s. 6d.; Glasgow to Rouen, 1,350 tons, 16s. 6d.; Glasgow to Granville,

700 tons, 17s. 3d.; Glasgow to Northern French ports (excluding Rouen) contract, voyages August to April, 17s.; and Firth of Forth to Algiers, 1,800 tons, 23s. 6d., fuel. Towards the end of last week a steamer was fixed from Glasgow to Alexandria (2,400 tons) at 29s., for coals and general cargo. Another Glasgow boat was fixed outward from Wales to Port Said at 22s. 6d. Some time-chartering business was done, the Glasgow owned steamer *Netherpark* being fixed at 14s., delivery and re-delivery United States, for a West Coast of South America round. During the period under review there was a slight recovery in homeward rates from the River Plate, 61s. 3d. and 62s. 6d. being paid for handy boats for up-river ports, but a few days later business was not so active. Eastern markets were almost at a standstill.

Newcastle-on-Tyne.

So far as tonnage supplies are concerned, coal merchants and exporters have every incentive to do business, but it would seem that the slight relaxation in the application of the coal export restriction order reported last week was not to be maintained, and very little business is now possible. The Newcastle coal market is practically at a standstill, and there is, therefore, only a very meagre demand for steamers. The volume of chartering done shows a big decrease when compared with that of last week and even the number of fixtures for France and coasting ports, previously exceedingly well maintained, has fallen off considerably. Rates show a general decline, excepting for coasting ports, which are steady on the basis of 7s. to London. To North France, where the great congestion of steamers is said to have been somewhat relieved, quotations are easy. Rouen has fallen fully 6d., Caen is 6d. cheaper and Havre is about 3d. lower on the week. There has been very little doing to the Bay and the only fixture to St. Nazaire records a fall of 6d. on last week's rates. The Mediterranean has suffered most on the week's work and all Italian ports are quoted at less money. Genoa is from 1s. 6d. to 1s. 9d. down and, with tonnage in that direction in very small request, can now be done at about 24s. Port Said is 2s. 6d. cheaper. Fixtures arranged since the last report include the following:—Archangel, 1,000, 20s.; Boulogne, 1,700, 14s.; Bayonne, 1,800, 20s.; Bordeaux, 4,500, 19s.; Barcelona, 6,500, 23s. 6d.; Calais, 1,800, 14s. 6d.; 670, 17s. 9d., coke, from Dunston; Caen, 1,600, 14s.; Catania, 1,800, 25s.; Dieppe, 1,700, 14s.; Fecamp, 1,250, 14s. 6d.; Gibraltar, 4,800, 18s. 3d.; Genoa, 5,000, 24s. 9d.; 4,600, 25s.; 4,700, 24s. 3d.; Havre, 1,700, 14s.; Las Palmas, 2,000, 21s.; London, 1,400, 7s. 6d.; 1,200, 7s. 9d.; 800, 7s. 6d.; 550, 7s. 3d.; 1,750, 7s. 3d.; Messina, 1,800, 25s.; Naples, 1,800, 25s.; Nice, 3,500, 25s.; Palermo, 1,800, 25s.; Port Said, 3,500, 24s.; Rouen, 1,600, 15s. 6d.; 1,000, 15s. 6d.; 2,500, 15s.; 1,700, 15s.; 1,850, 15s. 3d.; Rochefort, 1,300, 19s.; St. Nazaire, 3,600, 18s. 6d.

Liverpool.

This market has undergone little change during the past week. A quiet steady business is being done in both outward and homeward directions, and while there is no particular activity in any department there is a quiet confidence that all positions will be well maintained until the movement of the world's harvests creates a more active and sustained demand for tonnage. In this connection there are some to be found who anticipate a much more pronounced shortage of tonnage this autumn than has hitherto been experienced, and this seems very probable with the requirements of the war at the various fronts diverting tonnage from their usual trades, as for example the present large shipments of coal and other stores from America to the Mediterranean markets, and also to South America, as they come on are therefore likely to be bare of available tonnage, and higher values will be the only means of attracting ships again into the general cargo trades. The outward fixtures from the Mersey show 15s. having been paid to Bordeaux, 21s. to Alexandria, and 30s. Garston to Greece. Time chartering just now is slow, but rates keep steady. In homeward directions, North America's shipment of coal from Virginia to South America and to West Italy has overshadowed everything else, the former making 36s. to Rosario, and 38s. to Brazil, while to Marseilles 35s. is being paid, and to West Italy 40s. 6d. for three trips. There is some inquiry for grain tonnage August-September at 8s. 6d. to United Kingdom, and 10s. 6d. to West Italy from the Gulf, and oats from Northern Range quote 5s. 6d. to 5s. 9d. to United Kingdom. Timber on Form "O" paid 140s. Gulf to Liverpool, August-September. River Plate homewards has gone quiet again, but tonnage is being held at the recent advance, the last fixture to United Kingdom, including the Mersey, being done at 62s. 6d. August. Eastern markets are quiet all round, and few inquiries are about, though rates are unaltered. India has likewise little

doing, but holds to 52s. 6d. d.w. from Bombay, 45s. from Karachi, and 65s. d.w. from Calcutta. Mediterranean, homewards, quiet, but Volo to Liverpool done at 22s. Six to Birkenhead at 15s. and Carthage to Goston at 12s. North Pacific steady at 85s. to United Kingdom. Sail tonnage both outward and homeward is out of the market at the moment.

Cardiff and Swansea.

With the inquiry and the available supplies of tonnage about equal, rates have generally maintained a steady tone and have not materially fluctuated, while chartering was only on a moderate scale, 164,490 tons being fixed to load at Cardiff or Newport during the past week or 5,000 tons less than in the previous week. For the Mediterranean the demand was somewhat limited, but with boats none too freely offered rates were just maintained on the basis of Algiers 23 fr., Alexandria 24s. 6d. (700 tons delivery); Barcelona, 20s.; Civita Vecchia, 23s. 6d.; Genoa with options, 22s. 6d. (six) 22s. and 22s. 3d. (twice); Gibraltar, 13s. 9d. (net); Leghorn, 22s. (600 tons delivery); Marseilles, 25 and 25½ fr.; Naples or Leghorn, 21s. 6d. (600 tons delivery); Naples, 21s. (800 tons delivery); Piræus, 25s.; and Spezia, 21s. 3d. (700 tons delivery), and 21s. 9d. (500 tons delivery). Bay and Coasting business was also confined within comparatively narrow limits with the tone steady at Bordeaux, 18½ fr. (three); Bilbao, 13s.; Calais or Boulogne, 13s. 6d.; Cork, 7s.; Havre, 11s.; Honfleur, 12s. (twice); La Rochelle, 15 fr.; Morlaix or St. Brioux, 12s.; Nantes, 16 and 15½ fr.; Plymouth, 8s.; Rouen, 13s. 6d. (twice), 13s. 3d. (twice) and 13s. 7½d.; Rochefort, 15½ fr.; St. Servan, 10s. 9d.; and St. Nazaire, 15½ and 15 fr. South American and Brazilian chartering was slow with rates steady at Bahia Blanca, 28s. 6d.; Monte Video, 26s. 9d.; River Plate, 27s. 6d., 27s. 3d. and 26s. 6d.; and Rio de Janeiro or Santos, 25s. 6d. Labour troubles at Swansea, particulars of which are in our South Wales Notes, did not affect the Swansea market, tonnage aggregating 66,670 tons, being fixed during the past week to load at Swansea or Port Talbot, or 20,070 tons more than in the previous week. The demand for the Mediterranean was good, but with tonnage sufficient to meet requirements rates ruled steady on the basis of Alicante, 20s.; Genoa, with options, 23s. (twice); Maraus, 19½ fr.; Marseilles, 27½ fr.; Naples, 22s.; and Oran, 24 fr. A fair business was also done for the Bay Coast at Arcachon, 20 fr.; Bordeaux, 19 fr.; Boulogne, 13s.; Calais or Dunkirk, 13s. 6d.; Dieppe, 11s. 9d. and 12s. 6d.; Havre, 11s.; Honfleur, 12s. (twice); and Rouen, 13s. 7½d. (three), and 13s. 9d. (twice).

Hull.

The market is quiet but steady in tone for the Mediterranean direction and West Italian rates are based on 26s. for Genoa from Hull and 24s. for Alexandria from Hull. In the coasting branch rates are steady on the basis of 15s. for Rouen from Hull and 18s. for Dieppe from Hull, Honfleur from Hull, Havre from Hull, and Fecamp from Hull. Generally speaking, there is a remarkably good demand for the North French ports from Hull.

PORT NOTES.

Windsor (Ont.).—A new dock, built by the Canadian Government at a cost of about £13,360, has been opened at Windsor, Ontario. The dock is of concrete throughout, is 655 ft. in length, and can accommodate the largest steamboats on the Great Lakes. Upon it is erected a large warehouse of fireproof construction 300 ft. long, with offices for the officials. The Detroit river has been dredged to give 20 ft. of water at the dock. The city of Windsor is served by five trunk railways and is on the line of the Canadian steamship services on the Great Lakes.

Bengasi (Italian North Africa).—The only regular lines just before the war were the Italian Sicilia and Servizi Marittimi, the Hungarian Adria and the German Levant Line. The steamers of the latter company called only about once a month. No British ship called in 1914; in 1913 only two put in, one of them bringing a cargo of coal for the railway. Plans for improving the port have been prepared by the Public Works Department and submitted to the Italian Government. It is proposed that a shallow space enclosed by a reef facing the town should be filled in and converted into quays. Beyond the reef, where there is a depth of 46 ft., two piers or breakwaters would be built to form a basin 1,200 m. in length and 600 m. in width (1,312 by 656 yards). The cost is estimated at £1,200,000, the work taking about eight years to complete, though it is hoped that the harbour would be partly available for use in three years from the commencement of the under-

taking. An alternate scheme consists in the deepening of the present natural harbour, across which a channel 13 ft. in depth has been dredged for the convenience of small coasting steamers and sailing ships.

COMPANY MEETINGS.

Tatem Steam Navigation Company, Ltd.—Presiding at the annual meeting held at Cardiff on Monday, Mr. W. Tatem said that, taking the shipping industry through and through and making allowances for natural and unavoidable depreciation, and taking credit for boom times against spells of lean years, it could not be said that shipping investors have been over-compensated. There was a time during the past year when freights were dismally low; there was a time when they were phenomenally high; to-day they were 30 to 40 per cent. lower than the best, and he would not like to prophesy what they would be three months hence. The volume of tonnage requisitioned for Admiralty purposes, and the large number of Allied and enemy ships interned throughout the world and completely withdrawn for the time being from ordinary trade and competition, were factors to be reckoned with in estimating the future. So far as their company was concerned, they had paid special attention to the strengthening of their finances. They had invested £50,000 in the first War Loan and applied £100,000 in the new loan. Their fleet now consisted of 19 steamers with an aggregate tonnage of 145,500 tons. Coming to the details of the balance sheet, the profits for the year ended June 30 last, plus the sum brought forward, less written off first cost, amount to £130,523. This had been dealt with as follows:—Dividends paid December, 1914, and June, 1915, £52,500; reserve for income-tax, £30,000; reserve for war risk calls, £10,000, making a total of £92,500, leaving a balance of £38,023 to be carried forward to next account. The dividends for the year thus amounted to 15 per cent., and, taking into consideration that the income-tax is paid by the company, the distribution was equal to a dividend of nearly 17 per cent.

The report (an abstract of which appears on page 57) was adopted.

Empire Transport Company, Ltd.—Presiding at the 14th ordinary general meeting, held in London on Monday, Mr. Frank Henry Houlder said that the only vessel lost at the outbreak of the war was the *Victorian Transport*, which was discharging at Stettin. The whole of the company's fleet was insured for war risks before the outbreak of war, and on the internment of the *Victorian Transport* the company was entitled to collect the sum of £50,000. Seeing, however, that this vessel was quite new it was felt that it would be in the best interests of the company to defer collecting a total loss subject to an understanding with the War Risks Associations and the Government that the company receives an allowance by way of detention money with an understanding that the vessel shall, if possible, be returned in sound working order on the conclusion of the war, or, alternately, in the event of it being found that the steamer has in any way been rendered unsuitable for ordinary commercial purposes, a total loss will then be paid and the moneys received in the interval will be regarded as payments on account. The trading profit showed a gratifying improvement. Seven of their steamers were engaged on Government service. In addition to the redemption of £35,000 debentures the liabilities on account of new tonnage had also been reduced by £50,000.

The report was adopted.

COMPANY REPORTS.

Frederick Leyland & Co., Ltd.—The directors announce an interim dividend of 3 per cent. on the ordinary shares for the half-year ended June. This is the first ordinary share dividend since a controlling interest was acquired by the International Mercantile Marine Company. It will be recollected that the final payment in respect of arrears on the preference shares of 10 per cent. and covering interest to May 31 was announced in the annual report issued three months ago.

Anchor Line (Henderson Bros.), Ltd.—The report for the year ended April 30 last, states that the various services of the company have been well maintained considering the exceptional circumstances which have prevailed. The profits for the year amounted to £307,273, which, added to the balance brought forward of £86,962, gives a total of £394,235, out of which there has been

written off for depreciation £125,866, placed to reserve account, £100,000, and after meeting debenture interest and preference dividend there remains a surplus of £132,913, which the directors recommend should be applied to the payment of a dividend on the ordinary shares at the rate of 10 per cent., free of income-tax, absorbing £25,000, and a bonus on the ordinary shares of 5 per cent., free of income-tax, requiring £12,500, leaving a balance to carry forward of £95,413. We comment on the report on page 41.

Tatem Steam Navigation Company, Ltd.—The report for the year ended June 30 shows profits, including £23,818 brought forward from last account, amounting to £130,523, out of which has been paid in dividends £52,500; reserve for income-tax, £30,000; reserve for war risk calls, £10,000; together, £92,500; leaving a balance of £38,023 to carry forward to next account.

British Steamship Investment Trust.—The report for the year to June 30 states that from the revenue £21,667 has been applied to writing down the quoted investments to dealing prices in the Stock Exchange Official List of June 30; on the other hand, the value of the unquoted securities is largely in excess of their cost. The income, including balance brought forward (exclusive of £13,400 dividends accrued to June 30 and since received), amounted to £153,900 (against £136,771). It is proposed to pay a dividend on the deferred stock at the rate of 6 per cent. per annum, less tax (making 6 per cent. for the year); also to pay a bonus of 14 per cent., less tax, on the deferred stock, leaving to be carried forward £36,178 (against £32,361). For the preceding year the dividend was the same, but the bonus was 8 per cent.

Vereinigte Elbeschiffahrts Gesell.—This company have been very hard hit by the war. Its activities were practically suspended for a time last autumn and still suffer from shortage of labour and rolling-stock, closed bridges and interrupted telephone communication with Austria. Receipts for freight, towing, &c., were £392,380 in 1914, as against £503,950 for the previous year. General expenses were £345,395 (£394,350 in 1913); interest, £8,630 (£12,920); insurance, £13,650 (£14,070); taxes, &c., £2,663 (£2,110); depreciation, £38,718 (£39,334); loss, £41,432, against a profit of £41,167 for the previous year. The total loss is £58,105, i.e., about 10 per cent. on the share capital. During the war, traffic has been reduced to about half its normal amount. Owing to cessation of the Hamburg traffic, tugs have many "light" journeys, with serious loss of revenue. The increased traffic between Lübeck and neutral ports is a poor substitute for the Hamburg traffic. The exceptional railway tariffs permitted during the war have also proved very injurious.

William Cramp & Sons' Ship & Engine Building Company.—The report for the year ended April 30 shows net profits, after allowing for insurance and taxes, of \$956,796, against \$1,180,332 in the preceding 12 months. The surplus for the year is placed at \$651,634. This is equal to 10.6 per cent. earned on the \$6,098,000 capital stock outstanding compared with 13.9 per cent. in the previous financial year, 5 per cent. in 1912-13, and 3.4 per cent. in 1911-12. The report also states that at the present time there is great activity in the construction of vessels in the shipyards located along the Atlantic Coast. These are largely cargo-carrying ships. There is every reason to believe that this activity will continue until the present disturbance on the Continent reaches a settlement, and probably, owing to conditions in foreign yards, to a considerable period thereafter. The situation referred to in the 1913 report, as regards the necessity of spending a considerable sum of money to enable the plant to build economically the large ships required, still continues, and plans are under consideration for dealing with this situation. Their I. P. Morris Company's hydraulic department still continues abnormally dull, owing to the hesitation of capital to develop the water powers of the country. Our other subsidiary companies show larger earnings than last year. This condition promises to continue increasing in both volume and profit. The company, during the fiscal year, anticipated the payment of the remainder of the three-year 6 per cent. notes, and has cancelled the entire issue of \$1,200,000 notes, due April 1, 1916.

Furness, Withy & Co., Ltd.—In their report for the year ended April 30 the directors record their regret in the death, in September last, of Sir Stephen W. Furness, Bart., M.P., who had occupied the position of chairman of the company since December, 1912. The Board unanimously elected the Right Hon. Lord Furness to the chairmanship of the company, and at the same time elected as deputy-chairman, Mr. F. W. Lewis, who has been identified

with the company since its incorporation and has been a member of the Board for the past 16 years. The profits, including the balance brought forward, amount to £806,196. After charging directors' fees and income-tax, there remains a sum of £784,877, an increase over the previous year of £32,927. The usual half-yearly dividend on the preference shares was paid on November 1, 1914, and three quarterly dividends on the ordinary shares, at 10 per cent. per annum, free of income-tax, have also been distributed, leaving an available balance of £599,724. Of this balance the directors have transferred £350,000 to depreciation account; have inaugurated with a sum of £15,000 a superannuation fund for the benefit of the employees in the various offices of the company; and have appropriated a sum of £10,000 for division amongst the masters, officers and engineers of the fleet, as a recognition of the extra strain and vigilance necessary in consequence of the war. The appropriation of the available balance of £599,724 will therefore be:—Transferred to depreciation account, £350,000; superannuation fund, £15,000; war bonus for masters, officers and engineers, £10,000; six months' dividend on preference shares, at 5 per cent. per annum, less income-tax, paid May 1, 1915, £33,277; quarterly dividend on ordinary shares, at 10 per cent. per annum, free of income-tax, paid May 1, 1915, £50,000; carried forward to next year's account, £141,446. The directors applied for £50,000 of the War Loan issued in November last. On the issue of the new loan in June, they subscribed for a further £150,000, at the same time availing themselves of the rights of conversion in respect to their previous subscription. This makes a total investment by the company of £200,000, which, together with the amounts applied for by their associated and subsidiary companies, represents a total subscription of £550,000 to the new War Loan. On the outbreak of war, one steamer of the company's fleet, the ss. *Portinglis*, was interned at Bremen. Another, the ss. *Fernandina*, is unfortunately held up at Uleaborg, and the company has consequently been deprived of the earning power of these two vessels for nine months of the financial year. The ss. *Mobile*, ss. *Queen Wilhelmina* and ss. *Tunisiana*, have been destroyed by enemy submarines, the two latter since the close of the financial year. Over 50 per cent. of the company's fleet is at present engaged on Government business. Advantage has been taken of the high prices ruling for second-hand tonnage to dispose of several of the older vessels of the fleet. During the year the three new steamers, *Bedale*, *Pensacola*, and *Venice*, specially built for the Pomaron-States service, have been delivered by their builders. The company have, at the present time, under construction for their own and associated companies, 20 steamers, several of which are nearing completion. Six of these are large refrigerated meat steamers, specially designed and constructed for the conveyance of meat from the Argentine to this country, and are building for the new company, the Furness-Houlder Argentine Lines, Ltd. The many associated concerns in which the company holds a controlling interest continue to show satisfactory results. The Middleton Shipyard and the Harbour Dockyard of Irvine's Shipbuilding & Dry Docks Company, Ltd., have been kept fully employed, their operations including a considerable amount of Admiralty work. In addition to the removal of the registered office of the company from West Hartlepool to Liverpool, the company have also established their own office at Baltimore, U.S.A., under the management of Mr. A. F. Sidebotham. Mr. Ethelbert Furness has been elected to a seat on the Board to fill the vacancy occasioned by the death of the late Sir Stephen W. Furness, Bart., M.P.

NEWS PARAGRAPHS.

Havre-Swansea-Bristol Service.—We are informed that it has now been decided that the service to which attention was drawn in our issue last week shall be a weekly one instead of fortnightly as originally proposed. The itinerary will be the same.

M.S. "Australien."—The motor ship *Australien*, launched recently by Messrs. Burmeister & Wain, Copenhagen, is the sixth vessel of the same dimensions and type built by this firm for the East Asiatic Co., Copenhagen, and the 16th motor ship launched by the same builders. Further data are given in our launch table.

Cart Navigation Trust.—The election of representatives to the Cart Navigation Trust, which is about to be revived, is now being made. On Monday last the ratepayers of the undertaking met and elected the following gentlemen to represent them on the new Trust:—Mr. William Bow, engineer; Mr. James Fullerton, ship-builder; and Mr. James H. Young, timber merchant. Other members will be appointed by Paisley Town Council.

Over \$4,000,000 in Tolls.—The earnings of tolls for the use of the Panama Canal reached and passed the \$4,000,000 mark on June 6. The earnings during May were \$347,054.60, which brought the total for the period between the beginning of handling of cargo through the Canal, in May, 1914, and June 1, 1915, to \$3,897,693.61, and the earning of the additional \$100,000 required to make up \$4,000,000 was accomplished in less than six days in June.

The Hamburg-Amerika Line.—Considerable interest has been caused during the week by the rumour from Scandinavian sources that the Hamburg Amerika Line was going into liquidation. An emphatic denial was issued by the Hapag, and there the matter ends for the moment. It is believed in some quarters, however, that the Hamburg Amerika Line is seeking means of liquidating some of its assets, and the belief is expressed that such a scheme would be done at the expense of enemy creditors.

Fabroil Pinions. The British Thomson-Houston Company, Ltd., of Rugby, have received an order through Messrs. G. & S. Massey, of Manchester, for 93 special Fabroil pinions for power hammers for the French Government to be used in a French munition works. Fabroil pinions are very satisfactory in operation, being silent, strong and durable, and reducing vibration to the lowest limits. It is of interest to note in connection with the above that the Fabroil pinion department of the British Thomson-Houston Company is at present occupied with over 75 per cent. of Government work directly and 95 per cent. directly and indirectly.

Portable Motors for Boats.—H.M. Consul at Pará (Mr. G. B. Michell) reports that there appears to be an opening in the Amazon districts for a portable motor ("motogodillo") which could be fitted to any kind of rowing or sailing boat. In the present bad financial state of these districts large steam vessels are too expensive, and the few "motogodillos" already in use have been very favourably received. The name of a Liverpool agent who, it is understood, represents a firm in Pará, and would be willing to enter into negotiations in connection with the supply of portable motors, may be obtained by United Kingdom manufacturers of these goods on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall Street, London, E.C.

Panama Coal Charges Increased.—On and after September 1 next the following prices will obtain at the Panama Canal for coal supplied steamships, including warships of all nations:—Cristobal-Colon: Delivered alongside of vessel in lighters or in cars on the wharves, trimmed in bunkers, when handled by ship's gear, \$6 per ton. Balboa: Delivered alongside of vessel in lighters or in cars on the wharves, trimmed in bunkers, when handled by ship's gear, \$7 per ton. An additional charge of \$1 per hour will be made for the use of each mechanical hoist or crane furnished by the Panama Railroad Company. Provisions are being completed by which an ample supply of coal will be kept on hand in lighters ready for

delivery upon arrival of vessels. These lighters will be fitted with mechanical hoists which should deliver coal as fast as it can be stowed.

Japanese Shipbuilding, 1915.—According to the *Board of Trade Journal*, His Majesty's Commercial Attaché at Yokohama (Mr. E. F. Crowe, C.M.G.) has forwarded a memorandum showing the number and tonnage of merchant vessels which have been ordered from the leading shipbuilding yards in Japan in the present year. In all 45 steamers having a gross tonnage of 64,700 tons have been ordered. In addition, there are under construction a pump dredger (capacity 600 tons), a bucket dredger (capacity 500 tons), a steel tug boat and three concrete block carrying pontoons.

Declarations on Goods for Neutral Countries.—The attention of the Board of Trade has been called to the fact that traders in neutral countries desirous of importing British goods frequently adopt the practice of making declarations before His Majesty's Consular officers as to the intended destination of the merchandise, with a view to such declarations being used as evidence that the goods will not reach the enemy. It should, however, be clearly understood by exporters that the signing by the Consular officer of such declarations is a purely notarial act, necessary for the legalisation of the signature of the declarant, and that it does not imply that the Consular officer takes responsibility for or has any knowledge of either the status of the declarant or the accuracy of the statements made by him. The value of such a declaration, therefore, depends solely on the good faith of the declarant, and is in no degree enhanced by the presence on the document of Consular stamps or a Consular signature.

British Wrecks Reported in June.—The number and net tonnage of British vessels respecting the loss of which reports were received at the Board of Trade during the month of June, 1915, and the number of lives lost, are as follows:—

Description.	No.	Net Tonnage.	Lives Lost.
Sailing	35	5,347*	23½
Steam	63	34,389†	88½
Total	98	39,736	111

* Including 13 sailing vessels of 3,803 tons sunk by German warships.

† Including 50 steamers of 27,343 tons sunk by German warships, 4 steamers of 2,406 tons sunk by mines, and 1 steamer of 1,295 tons sunk by a German warship or by a mine.

‡ Including 5 lives lost in a sailing vessel sunk by a German warship.

§ Including 47 lives lost in steamers sunk by German warships, 12 lives lost in steamers sunk by mines, and 1 life lost in a steamer sunk by a German submarine or a mine.

The figures include the losses of 12 sailing vessels of 933 tons and 3 steamers of 82 tons belonging to British possessions abroad, involving the loss of the lives of 15 persons, of whom 13 were lost in sailing vessels and 2 in steamers.

"SHIPBUILDING AND SHIPPING RECORD" TABLE OF LAUNCHES.

Date of Launch.	Name of Vessel and Type.	Owners.	Builders.	Approx. Dimensions. — L × B. × D.	Propelling Machinery and Builders of Machinery.	Remarks.
	Labourdonnais, test	To the order of Crown Agents for Colonies.	Ritchie, Graham & Milne, Whiteinch.	130' 29' 13½'	Two sets of Tr. Exp. 14, 22, 36 27.	For towing, salvage and despatch service in Port Louis.
June 19	Barze No 353	British	Ritchie, Graham & Milne, Glasgow.	70' × 16' × 7'		75 tons.
June 19	Patria (cargo-steamers)	Förnyade Angfartygs A.B. Götha, Gothenburg.	Göteborgs Nya Verkstads A.B. "Götaverken," Gothenburg.	214' 34' 15½'	Tr. Exp. 19, 29½, 49½ × 29½ stroke, 800 h.p. Forced draught and superheaters. ("Götaverken.")	1,300 tons d.w. Sweden-Holland and Belgian trade.
June 26	Australien, m- (cargo-shelter deck).	East Asiatic Co., Copenhagen.	Burmeister & Wain, Copenhagen.	410' 55' 38' 6"	Diesel motors. H.P. 2—1,550. Burmeister & Wain.	9,021 tons d.w. 1st class pass. to Europe-American trade.
June 29	Braes O'May (traw- June 29 Linn O'Dee lers)	Standard Fishing Co., Aberdeen.	Hawthorns & Co., Leith ..	—	Hawthorns & Co. ..	—
June 29	Bramley Moore, s.t..	Alexandra Towing Co., Liverpool.	John Cran & Co., Leith ..	100' × 23½' × 13½'	C.S.C. engines. 900 i.h.p. John Cran & Co.	—
June 29	General Pan, ss. (cargo)	Vesley Bros., London ..	Montrose S.B. Co., Montrose	123' × 25' × 10' ..	Tr. Exp. Wm. Beardmore & Co. (Coatbridge). Boilers by Dal-	For Madagascar trade.
July 1..	Barentsz, ss. (pass- and cargo).	Koninklijke Paketvaart Maatschappij, Amsterdam	Nederlandsche Scheepsbouw Maatschappij, Amsterdam.	384½' 48½' 30'	Tr. Exp. 3,150 i.h.p. Werkspoor Amsterdam.	4,050 tons d.w. on 20'. For service in Dutch East Indies. 44 1st class, 32 2nd class pass. and a number of deck pass.

OFFICIAL NOTICES AND SHIPS FOR SALE.

FOR SALE.

(PARTICULARS NOT GUARANTEED.)

- Folio 8511.—Built 1910. Surveyed 1915. About 6,900 tons d.w. on about 23 ft. draught. Single Deck. Triple Engines. Three Single-ended Boilers. Speed about 9½ knots on about 23 tons.
- Folio 8965.—Built 1900. About 6,500 tons on about 24 ft. 9 in. draught. Shelter Deck. Triple Engines. Two Single-ended Boilers. Speed about 9 knots on about 22 tons.
- Folio 7751.—Built 1898. Surveyed 1914. About 5,550 tons d.w. on about 22 ft. 6 in. draught. One Deck and Spar Deck. Triple Engines. Two Single-ended Boilers. Speed about 9–9½ knots on about 20 tons. Prompt Delivery.
- Folio 6449.—Built 1891. Surveyed 1912. About 4,400 tons d.w. on about 22 ft. 6 in. draught. Well Deck. Triple Engines. Two Single-ended Boilers. Speed about 8½ knots on about 14 tons.
- Folio 3425.—Built 1901. Surveyed 1914. About 3,400 tons d.w. on about 17 ft. 10 in. draught. One Deck. Triple Engines. Two Single-ended Boilers. Speed about 8½ knots on about 14 tons.
- Folio 8234.—Built 1903. Surveyed 1912. About 1,450 tons on about 14 ft. 10 in. draught. Well Deck. Triple Engines. Two Single-ended Boilers. Speed about 9½ knots on about 9½ tons.

For further particulars, plans, prices, &c., apply to:—

THOS. PINKNEY & SONS,
Sunderland.

Telegraphic Address—"Spardeck."

FOR SALE.

- Folio 4150.—Steel single-deck steamer, long bridge. Built 1903. About 5,450 tons d.w. on 22½ ft. draught. Triple Engines. Two single-ended boilers. Speed 8½–9 knots on about 17 tons. Delivery U.K. in August.

Further particulars, plan, price, &c., on application.

EDWARD HALL,
112, Bute Street,
Cardiff.Broker for the Sale, Purchase and Construction
of Shipping Property; Marine Surveyor.Telegraphic Address:—
"Salvage."

THE Proprietors of British Patent No. 18412/11, dated August 14th, 1911, relating to "Marine Propulsion Mechanism," is desirous of entering into arrangements by way of a license or otherwise on reasonable terms for the purpose of exploiting the above Patent and ensuring its practical working in Great Britain. All enquiries to be addressed to HERON, ROGERS & DEHN, Broad Sanctuary Chambers, Westminster, London, S.W.

OFFICIAL NOTICES AND SHIPS
FOR SALE.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Wednesday.

All advertisements should be addressed to:—

Shipbuilding and Shipping Record,
Queen Anne's Chambers,
Westminster,
London, S.W.

"SHIPBUILDING AND SHIPPING RECORD" TABLE OF SHIP SALES.

Name and type.	Tonnage.	Dimensions. Draught in ().	Sold by, to	Builders, hull and year.	Machinery and builders.	Remarks.
Aldershot, ss. (trunk dk.)	2,177 gr. 1,354 net.	280' × 42' × 18½'	Britain SS. Co. (Watts, Watts & Co.), London, to buyers not stated	Ropner & Son, Stockton (1897)	21, 35, 37 × 39 (Blair & Co., Stockton)	—
Avra, ss. (part awning dk.)	2,370 gr. 1,520 net.	296½' × 39½' × 18½'	G. Psiachi, Syra, to Norwegian buyers	J. Priestman & Co., Sunderland (1892)	23, 38, 62 × 42 (W. Allan & Co., Sunderland)	—
Alcanda, ss. (shelter dk.)	4,298 gr. 2,695 net.	381' × 49' × 25½'	Ardoval SS. Co. (E. F. & W. Roberts), Liverpool, to Donaldson Bros., Glasgow	W. Pickersgill & Sons, Sunderland (1906)	26, 43, 72 × 48 (G. Clark, Sunderland)	Price about £78,000.
Calcutta, ss. ...	3,577 gr. 2,244 net.	348½' × 49½' × 23'	SS. Calcutta Co. (Nelson, Donkin & Co.), London, to buyers not stated	Furness, Withy & Co., West Hartlepool (1907)	24, 39, 66 × 45 (Richardsons, Westgarth & Co., Hartlepool)	—
Cierbana, ss. ...	1,253 gr. 717 net.	226' × 34' × 15½'	Cia. Vap. Sota y Aznar (Sota y Aznar), Bilbao, to buyers not stated	Sir R. Dixon & Co., Middlesbrough (1894)	16, 26, 43 × 30 (N.E. Mar. Eng. Co., Sunderland)	Price about £19,000.
Evangeline, tss. (awning dk.)	4,360 gr. 2,442 net.	350½' × 46' × 30½'	Canada, Atlantic & Plant SS. Co., Halifax, to U.S.A. buyers	London & Glasgow Company, Glasgow (1912)	(2) 24, (2) 38½' × (4) 44 (London & Glasgow Co.)	—
Heemskerk, ss.	2,183 gr. 1,375 net.	293' × 43' × 20½'	Stoomv. Maats. Tromp. (J. F. & F. Schellen), Rotterdam, to Norwegian buyers	Schbw. v. Jan Smit, Czn Alblasserdam (1902)	22½, 36½, 60 × 39 (Blair & Co., Stockton)	—
Lord Lonsdale, ss. (re-named Annapolis)	4,567 gr. 2,895 net. 7,557 d.w.	280½' × 51½' × 26½'	SS. Lord Kelvin Co. (J. Herron & Co.), Liverpool, to Furness, Withy & Co., Liverpool	W. Hamilton & Co., Port Glasgow (1911)	26, 42, 70 × 48 (D. Rowan & Co., Glasgow)	Price about £85,000.
Saghalien, ss. ...	3,960 gr. 2,408 net.	413½' × 39½' × 32½'	Messageries Maritimes, Marseilles, to M. Dumond, Lyons	Messageries Maritimes La Ciotat (1881)	Messageries Maritimes ...	Price about 260,000 fr.
Southfield, ss. (ex <i>Main-stair</i>)	3,506 gr. 2,269 net. 5,900 d.w.	341' × 46½' × 24½'	T. A. Blane, Cardiff, to Edwards, Heppburn & Co., Cardiff	J. Blumer & Co., Sunderland (1899)	24½, 40, 66 × 45 (Blair & Co., Ltd., Stockton-on-Tees)	Price £42,000. Sold two months ago by Field Line (Cardiff), Ltd., to T. A. Blane for £38,000.
Tifis, ss. (spar dk.)	2,783 gr. 1,845 net.	305' × 40' × 25½'	Soc. Anon. d'Armement d'Industrie & de Commerce, Antwerp, to Salvage Association, London	Armstrong, Whitworth & Co., Newcastle (1900)	24, 39, 64 × 42 (Wallsend Slipway Co., Newcastle)	Lying at Alicante, Spain, damaged by fire. Sold on behalf of underwriters.

"SHIPBUILDING AND SHIPPING RECORD" TABLE OF TRIAL TRIPS.

Date of Trial Trip.	Name of Vessel and Type.	Owners.	Builders.	Approx. Dimensions. L. × B. × D.	Propelling Machinery and Builders of Machinery.	Remarks.
June 28	John Rettig, ss. (cargo).	Erik Brodin, Gefle, Sweden.	A.S. Fredriksstad mek. Verksted and A.S. Sorlandets Skibsbyggeri, Fevig, Norway.	265' × 42' × 20'.	Tr. Exp. 18, 29½, 50 × 36. Fredriksstad Works, Norway.	3,035 tons d.w.
June 29	Rotesand, ss. (salvage tug).	Schleppschiffahrt - Gesell. Unterweser in Bremen.	Schiffswerft D.W. Kremer Sohn, Hamburg.	77' × 18' × 9½'.	—	—
July 8	Tolosa, ss. (cargo) ..	Fearnley & Eger, Christiania	A.S. Fredriksstad mek. Verksted.	265' × 42' × 20'	Tr. Exp. 20½, 33, 56 × 36. Fredriksstad Works, Norway.	3,035 tons d.w.
July 10	San Mateo, ss. (pass. and fruit carrier).	Tropical Fruit Steamship Co., Ltd., Registered at New York.	Workman, Clarke & Co., Ltd., Belfast.	—	Tr. Exp.	United States, Central America and West Indian ports.

SHIPPING SHARE MARKET.

The market concerned in transactions in the securities of steamship and shipbuilding companies may best be said to have enjoyed the distinction of being the only section of the Stock Exchange that has shined with the War Loan the interest of investors. A good deal of country business has been transacted, especially with New Castle where there has been quite a little business in the lower priced shares of steamship companies. The heavy demand for the shares of P. & O. and Royal Maids, have also received a fair measure of support and there is no evidence in the market of any disinclination on the part of investors to give favourable attention to any line of stocks offered by a bona fide holder. The issue of the report and accounts of the Anchor Line has also been another favourable feature, the dividend and bonus being maintained at the figure of 15 per cent., which of course, will go to benefit the shareholders of the Cunard Company who hold the ordinary shares. The dividend, justified as it is by the increased

profits, is taken as indicating the continued prosperity of the steamship companies in the face of many adverse conditions, and the appetite of investors for any shares which look cheap has consequently been stimulated. We refer to the Anchor Line accounts elsewhere. The Leyland Line announcement that payment of all arrears of preference dividend (which was intimated in April last) would take place this week has also been received with satisfaction. The British Steamship Trust dividend has also added to the general optimism. The directors have been able to declare a distribution at the rate of 34 per cent. for the half-year, which makes, with the interim dividend, a dividend for the year of 20 per cent. This is easily a record dividend. Shareholders are now benefiting from the long period during which the yearly dividend was confined to 4 and 5 per cent., whilst the surplus on revenue account was largely used for writing down the value of the Trust's investments. The forthcoming accounts will doubtless show that the directors have not failed to recognise the need for still further strengthening the financial reserves of the company.

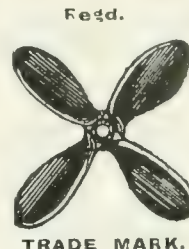
SHIPPING, SHIPBUILDING, ENGINEERING AND MARINE INSURANCE SHARE LIST.

SHIPPING AND DOCKS.							IRON AND STEEL.									
Name.	Share and paid.	Extreme quotations, 1913.	Last ann. div. % or per share.	Yield. %	Quotation, July 30, 1914.	Cash price during week.	Name.	Share and paid.	Extreme quotations, 1913.	Last ann. div. % or per share.	Yield. %	Quotation, July 30, 1914.	Cash price during week.			
African S.S. ...	20	21½-19½	7	7½	18-20	—	Babcock & Wilcox ...	Ord.	1	69½-56½	16	5½	2½-2½	2½		
Alan Line ...	100	85-89	4	4½	93½-95½	—	Baldwins ...	Cum. pref.	1	22½-21½	5½	5½	1½-1½	1½		
Anchor Line ...	Cum. pref.	10	10½-10	5½	10-10½	10½	Do. ...	Deb.	Stk.	100½-100½	4½	4½	97-99	99		
Do. ...	Deb.	Stk.	98½-98½	4½	104-106	104½	Bayliss, Jones ...	Cum. pref.	1	12½-11	4	4½	11½-12½	11½		
Argentine Nav. ...	Cum. pref.	1	29½-25½	3	4½	1½-1½	Bell Bros. ...	Cum. pref.	1	98-96½	4	4½	96-98	96-98		
Do. ...	Deb.	Bds.	104½-100½	6	6½	98-100	92	Do. ...	Deb.	Stk.	1	1½-1½	6	6½	1½-1½	1½
Australasian Un. S. Nav. ...	Deb.	Stk.	84½-81½	4	4½	80-83	—	Bessemer (Henry) ...	Ord.	1	1½-1½	10	8½	1½-1½	1½	
Belast Steam ...	"A" 10 (cpd)	1	58-48	5	3	47-51	103	Bolckow Vaughan ...	Ord.	1	22½-19½	6	6	11-11½	11½	
British African Nav. ...	Deb.	Stk.	102-101	4½	4½	96½-98½	91½	Cargo Fleet Iron ...	Cum. pref.	20	21½-20½	5	4½	20-21	20-21	
British India Nav. ...	Deb.	Stk.	104-98½	4½	4½	99½-100	—	Do. ...	Deb.	1	11½-7½	2½	5	11½-11½	11½	
Bucknall SS. ...	Cum. pref.	2	22-14	5½	5½	91-93	—	Do. ...	Deb.	100	91-85½	4½	4½	89-92	87	
Cairn Line ...	Deb.	Bds.	102-94	15	10½	10½-11	131½	Consett Iron Co. ...	Ord.	1	88½-74½	30	7½	34-31	30	
Cain Line ...	Ord.	10	148-9	10	9	10½-11	131½	Dominion Iron & Steel ...	Bds.	1	100½-88½	5	5½	83-87	76	
Count Line ...	Ord.	£1	—	10	9	10½-11	131½	Dorman, Long ...	Ord.	1	21½-16½	7½	8½	17-17½	17½	
Cunard SS. ...	Ord.	1	35½-28	20	9	11-1½	—	Do. ...	Deb.	Stk.	88½-85½	4	4½	87-90	84½	
Do. ...	Cum. pref.	Stk.	102-97½	5	5½	99-101	96	Ebbw Vale Steel & Iron ...	Ord.	1	18-16½	10	10	17-17½	17½	
Do. ...	Deb.	Stk.	102-99	4½	4½	101-103	96½	Guest, Keen & Ntchels ...	Ord.	1	68½-61½	15	4½	34-33½	33½	
Elder Line ...	Deb.	Stk.	103-100	4½	4½	98-102	100	Do. ...	Cum. pref.	5	5½-5½	5	4½	5½-5½	5½	
Elder Dempster ...	Cum. pref.	1	1½-1½	5½	5½	1½-1½	98	Do. ...	Deb.	Stk.	100½-95½	4	4½	96-98	94½	
Do. ...	Deb.	Stk.	105-95½	6	6	102-104	98	Hadfield's Steel Foundry ...	Ord.	1	63-58½	22½	7½	3-3½	3½	
Ellerman Lines ...	Pref. Ord.	10	10½-10½	4½	4½	10-10½	9½	Hawthorn (R. & W.) Leslie ...	Ord.	10	13-12	10	7½	12½-13½	13½	
Do. ...	Cum. pref.	10	10½-10½	4½	4½	10-10½	9½	Ibbotson Bros. ...	5 (4 pd.)	7-5½	10	7½	6-6½	6-6½		
France Fenwick ...	Cum. pref.	5	97½-92½	5½	5½	4½-5	4½	Jessop (W.) & Sons ...	Ord.	5 (4 pd.)	68-68	15	11½	63-63	63	
Furness, Withly ...	Ord.	1	34½-25½	10	6½	1½-1½	11	Lanarkshire Steel ...	Cum. pref.	10	7½-6½	6	6½	5½-6½	5½	
Do. ...	Cum. pref.	10	94-94	5	5½	98-10	8½	Lysaght (J.) ...	Cum. pref.	1	27½-25	6	1½	11-11½	11	
General Steam Nav. ...	Ord.	7½	61½-53	6	8	5½-5½	5½	Do. ...	Deb.	Stk.	108½-102½	4½	—	104-106	—	
Do. ...	Pref.	5	7½-7½	6	7½	7½-7½	4½	Manganese Bronze ...	Ord.	1	8-8	6	11	—	—	
Houlder Line ...	Cum. pref.	5	85-60	Nil.	Nil.	24-21	4½	Do. ...	Cum. pref.	1	1-1	6	6½	—	—	
Do. ...	Deb.	Stk.	84½-80	4½	5½	81-86	83	North-Eastern Steel ...	Deb.	Stk.	89-92	4½	—	—	—	
Houlder Bros. ...	Cum. pref.	5	85-78	4½	5½	81-86	83	Palmer Ship & Iron "A" ...	Ord.	1	16-14½	5	6½	—	—	
Do. ...	Deb.	Stk.	87-73	5	9½	9-10	4½	Do. ...	Deb.	Stk.	86-82	4	4½	81-82	89-91	
India Gen. Nav. & Ry. ...	Ord.	10	92-71½	6	6½	34-4½	4½	Scott's Forge ...	Ord.	1	1½-1½	12½	7	1½-1½	1½	
Indo-China N. ...	Pref. Ord.	40	125-114	15	5½	126½-128½	—	Shelton Iron & Steel ...	Deb.	100	99½-90	5	5½	93-98½	93-98	
Irawaddy Flotilla ...	Ord.	10	91½-8	8	7½	84-84	10½	S. Durham Steel & Iron ...	Ord.	1	35-23½	10	6½	1½-1½	1½	
King Line ...	Deb.	Stk.	87-79	5	—	78-80	78	Do. ...	Cum. pref.	1	20½-19½	6	5½	1½-1½	1½	
La Guaira Harbour ...	Cum. pref.	£1	1½-1½	6	6	1½-1½	1½	Do. ...	Deb.	Stk.	95-98	4½	4½	90-92	90-92	
Lampart & Holt ...	Cum. pref.	10	11-9½	10	10	7½-8½	19	Steel Co. of Scotland ...	Ord.	10	12½-8½	5	4½	8½-9	8½-9	
Leyland (F.) ...	Cum. pref.	100	99½-95½	4	4	99-101	—	Stewarts & Lloyds ...	Pref. Ord.	10	21½-20	10	4½	20-21	19	
Mercantile SS. ...	Ord.	5	8½-6½	17½	10½	6-6½	8½	Do. ...	Cum. pref.	10	14½-13½	6	4½	11½-13½	13½	
Do. ...	Pref.	1	16½-16½	5	5½	4-1	7½	Stone (J.) ...	Cum. pref.	10	9½-9	5	5½	84-94½	94½	
Moor Line ...	Ord.	10	14-11½	15	—	—	—	United States Steel ...	Ord.	100\$	71½-50	3	4½	61-61½	61½	
Nelson Steam Nav. ...	Deb.	100	103½-99	5	5½	99½-101½	97½	Do. ...	Cum. pref.	100\$	112½-104½	7	6½	112-113	114	
New Zealand ...	Ord.	8	20½-10½	8	3½	14½-15½	18½	Vickers Ltd. ...	Ord.	1	43½-33½	12½	6½	14½-14½	14½	
Do. ...	Deb.	Stk.	95-92½	4	4½	92-94	94	Do. ...	Pref.	Stk.	106½-99	5	5½	104-107	97½	
Nitrate Producers SS. ...	Ord.	5	8½-8	12½	7½	8-8½	12½	Do. ...	Deb.	Stk.	100½-91½	4	4½	96½-98½	93	
Do. ...	Cum. pref.	5	5-97½	5	—	4½-5	—	Weardale Steel ...	Def. Ord.	1	21-17	6	7½	1½-1½	1½	
Oceanic Steam Nav. ...	Deb.	100	100-96½	4½	4½	97-99	94	Do. ...	Cum. pref.	1	20½-18½	6	6½	1½-1½	1½	
Orient. S.M. Nav. Co. ...	Cum. pref.	10	10½-9½	5	5½	9½-10	9½	Do. ...	Deb.	Stk.	77-73½	4	—	77-80	—	
P. & O. S. N. ...	Cum. pref.	100	99-94½	4½	4½	95-100	98	Workington Iron & Steel ...	Ord.	1	16½-12½	6	8½	3½-3½	4	
Do. ...	Deb.	100	350-270	15	5½	270-290	260									
Do. ...	Deb.	Stk.	91-83	3½	4½	84-86	80½									
Prince Line ...	Ord.	1	25½-20½	5	3½	1-1½	1½									
R.M.S.P. ...	Ord.	100	143-100½	Nil.	Nil.	82-87	73									
Do. ...	Pref.	Stk.	100½-96	4	5½	98-101	92½									
Do. ...	Deb.	Stk.	104½-100½	4½	5	101-103	90½									
Shaw, Savill & Alb. ...	Cum. pref.	5	5½-96½	3	—	4½-5	—									
Shell Transport ...	Ord.	1	5½-96½	30	5½	4-4½	4½									
Do. ...	Cum. pref.	10	11½-10	5	5½	10½-10½	12									
Sutherland SS. Co. ...	Ord.	£1	1½-1	20	13½	1-1½	1½									
Union-Castle SS. ...	Cum. pref.	10	10-9½	4½	5	8½-9½	8½									
Do. ...	Deb.	Stk.	95½-92	4	4½	93-95	86½									
Union SS. of N. Z. ...	Deb.	Stk.	95-91	—	—	—	—									
West Hartlepool ...	Pref.	10	4½-3½	Nil.	Nil.	2½-3½	7½									
INSURANCE.							SHIPBUILDING AND MARINE ENGINEERING.									
Alliance ...	20 (2½ pd.)	12½-11½	12½	5½	11½-12½	10½	Armstrong, Whitworth ...	Ord.	1	60-39	12½	6	13½-2½	13½		
Do. (new shares) ...	1	14½-12½	12½	5½	15½-14½	12½	Do. ...	Cum. pref.	5	95-84½	4	4½	4½-4½	4½		
Indian Mutual Marine ...	15 (3 pd.)	10½-8½	11½	5	10-11	10½	Do. ...	Deb.	Stk.	96½-94½	5	5½	96-98	99		
Lombard Assurance ...	25 (12½ pd.)	54-49	20	4½	54-55	50½	Beardmore (W.) ...	Deb.	100	96½-91½	4½	5	94-96	91		
Marine Insurance ...	25 (1½ pd.)	38½-36½	45	6½	38½-39½	40½	Brown (John) ...	Ord.	1 (15s. pd.)	23½-17½	10	6½	2½-3½	2½		
Maritime Insurance ...	10 (2 pd.)	5½-4½	12½	—	8½-8½	—	Do. ...	Cum. pref.	10	104-91½	5	5½	94-104½	94		
Merchants' Marine Insurance ...	10 (2½ pd.)	66½-61½	7½	4½	4-4½	—	Cammell Laird ...	Ord.	5	3½-2½	7½	8	3½-4½	4½		
N. British & Mercantile ...	Ord.	25 (6½ pd.)	40-38	40-40	7½-8½	35	Do. ...	Cum. pref.	5	92½-79½	5	6	4½-4½	4½		
Do. ...	Pref.	Stk.	100½-95½	4	4½	98-100	84	Do. ...	Deb.	100	90½-84½	4½	5	92-94	91	
Phoenix Assurance ...	10 (1 pd.)	7½-7	40	6½	7½-8½	7½	Dunlop (Jas.) ...	Ord.	1	18½-17½	Nil.	—	1½-1½	1½		
Reliance Marine ...	10 (2 pd.)	7½-7	17½	4½	7½-8½	7½	Do. ...	Cum. pref.	1	1½-1½	6	7½	1½-1½	1½		
Royal Exchange Assurance ...	Stk.	210-196½	10	5½	213-218	189½	Fairfield Shipbldg ...	Cum. pref.	10	10-7½	6	8½	—	—		
Sea Insurance ...	10 (2 pd.)	20-17½	8	4	20-21	20½	Fleming & Ferguson ...	Ord.	10	200-123	10	6½	14½-14½	15		
World Marine, Limited ...	5 (2 pd.)	25-23½	5	5½	1½-1½	1½	Gray (Wm.) ...	Deb.	100	100½-100	4½	4½	100-102	100		
* Includes 2½% bonus.							Henderson (D. & W.) ...									
							Ord.									
							1									
							3½-1½									
							Nil.									
							9-4½									
							Nil.									
							70-58									
							4½									
							102-10									
							5									
							102-10½									
							10									
							66½-53									
							Nil.									
							Nil.									
							Nil.									
							19½-16½									
							110									
							10½									
							1½-1									
							1½									
							19-17½									
							5									
							10½									
							90½-88									
							4½									
							—									
							90-93									
							—									
							—									
							27½-12½									
							8									
							8									
							19½-11½									
							6									
							7½									
							94-91									
							5									
							5½									
							88-92									
							94									



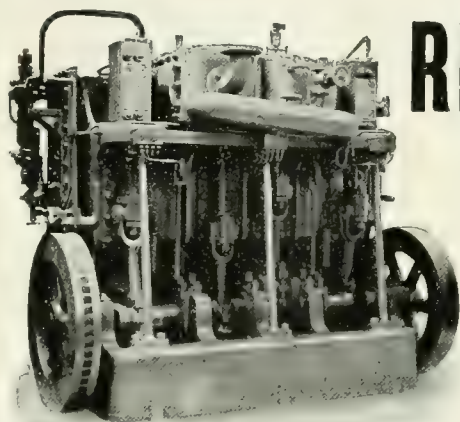
"INTERNATIONAL"
(Regd.)
ANTICORROSIVE AND ANTIFOULING COMPOSITION.
"LAGOLINE PAINTS"
(Regd.)

Over 18 million tons of shipping coated during 1913.



HOLZAPFELS LIMITED,
HEAD OFFICE & WORKS NEWCASTLE-UPON-TYNE.
And at LONDON, LIVERPOOL, GLASGOW, CARDIFF. Agencies at all Ports.

A BRITISH COMPANY EMPLOYING ALL BRITISH LABOUR.



REFRIGERATING MACHINERY

(CARBONIC ANHYDRIDE and AMMONIA COMPRESSION SYSTEMS).

for Cooling Ammunition Rooms, Storage of Provisions,
Carriage of Chilled and Frozen Meat, Fruit, etc., and making ice

as supplied to

THE BRITISH AND FOREIGN NAVIES & THE LEADING STEAMSHIP LINES.

J. & E. HALL, Ltd.,

DARTFORD IRONWORKS, KENT, and 10, ST. SWITHIN'S LANE, LONDON, E.C.

W. S. LAYCOCK, Ltd., — Victoria Works, — Millhouses, SHEFFIELD.

Telephone 4417 (3 lines).

Telegraphic Address: "Invention, Sheffield."

PATENT SELF-BALANCING FRAMELESS SASH

... FOR ...

Promenade Decks of Steamships and other purposes.

Very simple mechanism, easily regulated and Windows are easily movable upwards or downwards.
FITTED ON MANY OF THE LARGE ATLANTIC LINERS. *Full particulars sent on application.*

BRASS FITTINGS FOR STEAMSHIPS, also CURLED HAIR, for
UPHOLSTERY PURPOSES, BLIND ROLLERS, &c., &c.

SUSPENSION BULB FURNACE.

UNIFORM SECTION.

(PATENT).

Board of Trade Constant
for
Suspension Bulb Furnace
15,000.

Strongest form of Furnace.
Highest factor of safety.

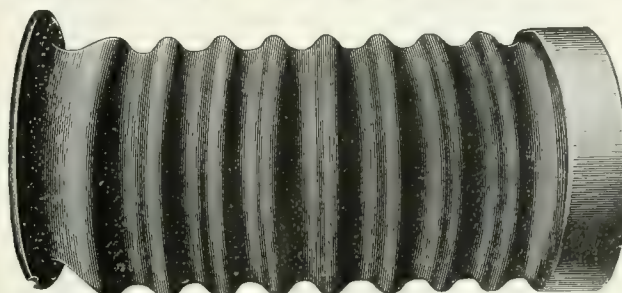
Full particulars on application to—

THE LEEDS FORGE COMPANY, LTD., LEEDS.

London Office—CAXTON HOUSE, WESTMINSTER.

MR. J. W. HAWLEY, Representative.

Telegraphic Address "ELEFFCO, LONDON."



Board of Trade Highest
Constant for
Other Corrugated Types
14,000.

Greatest diameter of Furnace
ever officially tested to
collapse.

HULL

N.E.R.



N.E.R. RIVERSIDE QUAY.
(available on all tides).

SPECIALLY EQUIPPED for PASSENGERS & PERISHABLES.

Apply to:

Telegrams: "Wickock, Railway, Hull."
Telephone: Nos. 4200-4202.

THE DIVISIONAL GOODS MANAGER,
North Eastern Railway, Hull.

**8 Docks covering
130 acres.**

Modern Equipment.

Large Warehouses.

**Sailings to Continental
and "Overseas" Ports.**

SHIP-REPAIRERS • ENGINEERS •

**Royal Liver Building,
LIVERPOOL.**

Telegraphic Address:

"REGULATOR,
LIVERPOOL."

Telephone No.:
8800 Bank.

H. & C. GRAYSON, LTD.

Works:

LIVERPOOL:
North End—
Canada Dock.

South End—
Queen's Dock.

GARSTON:
Grayson's Dry Dock.

BIRKENHEAD:
Graving Dock Works and
Grayson's Slipways.

REPAIRS ON THE MERSEY
PNEUMATIC TOOLS, OXY-ACETYLENE
AND ELECTRIC WELDING PLANT,
PRIVATE DRY DOCK AND SLIPWAYS

BACK NUMBERS OF THE SHIPBUILDING & SHIPPING RECORD

REVISED SCALE OF PRICES.

Back Numbers of "Shipbuilding & Shipping Record," if in print, will be supplied at 6d. within three months of date of publication.

Beyond that period the prices will be as follows:

Within 12 months of publication	-	-	s.	d.
From 1 year to 3 years after publication	-	-	2	6

SPECIAL NUMBERS.

Shipbuilding and Shipping Progress during				
1913	-	-	-	1 0

Postage extra in all cases

Apply to the PUBLISHER, "SHIPBUILDING & SHIPPING RECORD"
OFFICE, QUEEN ANNE'S CHAMBERS, WESTMINSTER, LONDON, S.W.

C. H. BAILEY,

**Tyne Engine and Ship Repairing Works,
SHIP REPAIRERS & ENGINEERS.**

Up-to-Date Plant for Quick and Efficient Repairs.

Oxy-Acetylene and Electric Welding a speciality. Portable and fixed
Electric Plant for all purposes.

LIFEBOATS and ICE CHESTS Made and Delivered at Short Notice.
Efficiency, Economy and Despatch.

Dry Dock Accommodation: Can Dry dock Four Large Steamers at Barry
and Two at Newport at the same time. **Barry Dock Commercial Dry**
Dock: Length 867 ft., Width at Top 113 ft. 6 in., at Bottom 100 ft., at
Entrance 60 ft.

NEWPORT (MON.) AND BARRY DOCK.

Telegrams: "Bailey, Barry." "Bailey, Newport."

Telephones:—Barry Works: Nat. 36: G.P.O. 9.
Newport Works: Nat. 3. G.P.O. 3.

P & OUnder Contract
with
His Majesty's
Government.

Frequent and Regular

Passenger Services**INDIA, CEYLON,
STRAITS, CHINA, JAPAN,
AUSTRALASIA.**

Also EGYPT and MEDITERRANEAN.

For Berths, Rates of Passage Money and Plans of the
Steamers, apply P. & O. S. N. Co., 132, Leadenhall Street, E.C.,
or Northumberland Avenue, W.C., LONDON.**THE NEW ZEALAND SHIPPING COMPANY**(Incorporated in New Zealand.) **LIMITED.**

Direct Service of Swift Royal Mail Steamers.

ROUTE:**Outwards** ... London, Tenerife, Cape Town, Hobart, New Zealand.**Homewards** ... New Zealand, Montevideo and/or Rio de Janeiro, Tenerife,
Plymouth, London.These Steamers are particularly adapted for the New Zealand trade, are of the
highest class, lighted throughout with electric light, and are fitted with every
modern improvement for the safety, comfort, and convenience of passengers.
The Mail Steamers are fitted with the Marconi System of Wireless Telegraphy.
Steamers are dispatched every fourth Thursday from London and from New
Zealand. Passengers booked to Tenerife and Cape Town, and to Australia
and Tasmanian ports *via* Hobart.**HEAD OFFICES—138, Leadenhall Street, London, E.C.**
AND CHRISTCHURCH, NEW ZEALAND.

For Freight and Passage apply to—

J. B. WESTRAY & Co., 138, Leadenhall Street, London, E.C.

R.M.S.P. & P.S.N.C.TO THE PENINSULA,
MADEIRA, CANARY IS.**BRAZIL, RIVER PLATE.**CHILE, PERU, ECUADOR,
WEST INDIES,

PANAMA CANAL,

BRITISH & DUTCH GUIANA, COLOMBIA, COLON,
AND THROUGH PANAMA CANAL TO PACIFIC PORTS.**MOROCCO.**

For particulars apply—

THE ROYAL MAIL STEAM PACKET COMPANY.
THE PACIFIC STEAM NAVIGATION COMPANY.
LONDON—18, Moorgate Street, E.C. and 32, Cockspur Street, S.W.
LIVERPOOL—31, James Street.**GLEN AND SHIRE** JOINT SERVICE
OF STEAMERS

FROM

Antwerp, Middlesbrough, Hull, London,

DIRECT TO

Penang, Singapore, Hong Kong, Shanghai, Kobe, Yokohama
and North Pacific Ports.TAKING CARGO AT THROUGH RATES TO ALL
THE PRINCIPAL DESTINATIONS IN THE FAR EAST.

For freight apply to the Brokers:—

MCGREGOR, GOW, NORRIS & JOYNER, Ltd.,
4, FENCHURCH AVENUE, E.C.

Tel. No. Avenue 4478. Telegraphic Address: "Eastwardly, London."

"SHIRE" LINE STEAMERS.

Owners:

THE ROYAL MAIL STEAM PACKET CO.
18, Moorgate Street, E.C.

Tel. No. 3720 Wall.

4, Fenchurch Avenue, London, E.C.

Telegraphic Address:—

"Omarishire, London."

Tel. No. 3568 Avenue.

"GLEN" LINE STEAMERS.

Owners:

For passage apply to the Owners:

GLEN LINE (MCGREGOR, GOW, & CO.)

LTD.,

1, East India Avenue, London, E.C.

Telegraphic Address:—

"Macgregor, London."

Tel. No. 458 Avenue.

**WEST AND SOUTH-WEST COASTS OF AFRICA,
AND THE CANARY ISLANDS.****The Royal Mail Steamers of the
AFRICAN STEAM SHIP CO.**

(Incorporated 1852 by Royal Charter) and

THE BRITISH AND AFRICAN STEAM NAVIGATION CO., LTD.,**Sailings every WEDNESDAY, THURSDAY and
SATURDAY. Taking Passengers at Low Rates.****Elder Dempster and Co., Limited,**

Head Office—Colonial House, LIVERPOOL.

And at London, E.C., Manchester, Cardiff, Birmingham, Hamburg, &c.

LAMPORT & HOLT LINE

TO AND FROM

SOUTH AMERICA.Mail and Passenger Steamers, fortnightly
between NEW YORK, BRAZIL and
ARGENTINE, calling also WEST
INDIES (Trinidad and Barbados).First Class Fast Cargo Steamers (carrying passengers), regular and
frequent sailings from MIDDLESBROUGH and LONDON, MANCHESTER,
GLASGOW and LIVERPOOL to BAHIA, RIO DE JANEIRO and
SANTOS; to MONTE VIDEO and BUENOS AYRES.
From LIVERPOOL and HAVRE, to WEST COAST OF SOUTH
AMERICA.

Between NEW YORK and MANCHESTER.

For descriptive Booklets and all particulars, apply to:—

LAMPORT & HOLT, LIMITED, ROYAL LIVER BUILDINGS,
LIVERPOOL.

Telegrams:—"Lamport."

SLIPWAY PROPRIETORS, ENGINEERS,**BOILERMAKERS, &c.****WINDSOR SLIPWAYS:—****CARDIFF ENTRANCE CHANNEL.**

Two Slipways take Vessels 341 ft. x 50 ft.

Gridiron with Jetty 450 ft. suitable for

Vessels lying alongside for survey

and other repairs.

All vessels using slipways are
free of Harbour and Wet
Dock Dues, and can
proceed to any
loading Port**MAIN WORKS:—**
Corner of
EAST DOCK.**BRANCH WORKS:—**
Commercial Dry Dock
(600 ft. x 60 ft.), Roath Basin.**CARDIFF.**

Telegraphic Address:—"Eclipse, Cardiff."

Telephones:—Main Works 2826 (2 lines). Branch Works 2204.
Windsor Slipways 772. Mr. J. Elliot 3571. Mr. T. Elliot 3456.**ELLIOT & JEFFERY****HILLS' DRY DOCKS and
ENGINEERING CO., LD.,
CARDIFF.****PNEUMATIC CHIPPING**
& cleaning a speciality.**Dry Dock Owners (3
Docks), Engineers, Ship
Repairers and Ironfounders.****UP-TO-DATE WORKS AND DOCKS.****OXY-ACETYLENE AND ELECTRIC WELDING.**

— PNEUMATIC TOOLS OF ALL KINDS. —

Offices & Works at EAST BUTE DOCK.

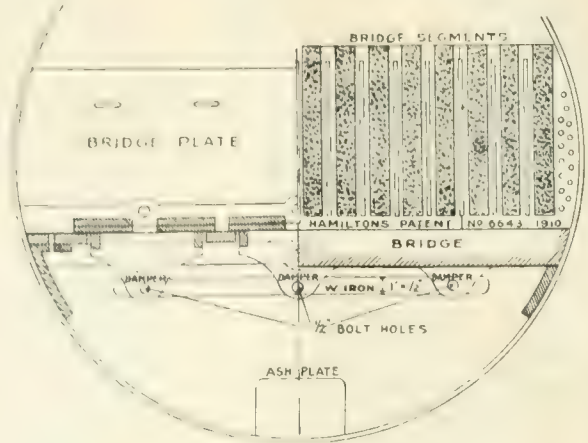
Telegrams:—"Euclid, Cardiff."

Telephone No. 2844.

HAMILTON'S Patent Furnace Bridge and Patent "V" Grooved Firebars.

A. HAMILTON & SONS,
—Iron and Brass Founders,—
13, Bute Crescent, CARDIFF.

Makers of HAMILTON'S PATENT HAWSE PIPE
and HAMILTON'S PATENT DECK FLANGE.



REFRIGERATING MACHINERY

NH³ and CO² Systems.

Insulation of Every Description.

THE LIVERPOOL REFRIGERATION CO., LTD.,
Colonial House, LIVERPOOL; and 70, Fenchurch Street, LONDON.

HARRY COCKS & CO.

Wholesale and Export Ship Furnishers.
TIMBER MERCHANTS.

LARGE STOCK OF ANCHORS
CABLES AND CHAINS
ALWAYS READY.

BOOT TOPPING, TOPSIDE and
HOLD PAINTS.

Bituminous Solutions and
Enamels for
Bunkers and Tanks.

PRESSED STEEL
GALVANIZED VENTILATORS,
from 1/4" to 1" in thickness.

LARGEST STOCKS in
BRISTOL CHANNEL.
Deck and Engine Stores.

Telephone Nos.:
OFFICE 4670 (2 lines).
PRIVATE 184.

Bute Docks,
CARDIFF.

Telegrams:
"Enquiries, Cardiff."
Code:
A B C 5th Edition.

DAWSON & DOWNIE, CLYDEBANK.

PUMPS FOR MARINE INSTALLATIONS.
PATENT DIRECT-ACTING FEED & SERVICE PUMPS.
IMPROVED VERTICAL DUPLEX PUMPS.

The "S. & S. R." is published every Thursday.

ADOPT LOVERIDGE'S



And they will do you credit!
Tested to 100% overload, without extra.
Screwed rivetted collar, for security.
Superior forged straps, with boss for axle.
Oil reservoir feed, facilitates lubrication.
Flush compact axle, of large bearing.
Anti-chafing shoulders, preserve rope.
Lathe-deepened sheaves, support rope.
Best malleable iron cheeks, light and strong.

Loveridge's Blocks are heavier, stronger and better
finished than most others, and cost little, if any,
more. List on application.

LOVERIDGE, L^{td.}, Manufacturing Ship
Furnishers, CARDIFF.

THE ROYAL MERCHANT SEAMEN'S ORPHANAGE, SNARES BROOK.

SOLICITS THE SUPPORT of all directly or indirectly connected
with the SHIPPING INTEREST
3,110 Orphans have already received its benefits. 314 are now Resident.
DONATIONS and SUBSCRIPTIONS thankfully received at the
Office, Dixon House, Lloyd's Avenue, E.C.
W. RAWLINSON, Secretary.

Buyers' Guide.

LIST OF THE LEADING MAKERS OF SHIPBUILDING & SHIPYARD & DOCK MACHINERY, APPLIANCES, PLANT & STORES.

ACCOMMODATION LADDERS—
Linklater's Patent Ship Fittings Co., Hudson St., North Shields.

ACETYLENE—
Carbic Ltd., 51, Holborn Viaduct, London, E.C.

AERIAL ROPEWAYS—
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.

AIR COMPRESSORS—
Belliss & Morcom, Ltd., Birmingham.
British Westinghouse Electric & Mfg. Co., Ltd., Trafford Park, Manchester.
Heinke, C. E., & Co., 88, 89, Grange Road, Bermondsey, S.E.

AIR PUMPS—
Allen, W. H., Son & Co., Ltd., Queen's Engineering Works, Bedford.
Belliss & Morcom, Ltd., Birmingham.
British Westinghouse Electric & Mfg. Co., Ltd., Trafford Park, Manchester.
Contraflo Condenser & Kinetic Air Pump Co., Ltd., 3, Central Buildings, Westminster, S.W.
Dawson & Downie, Elgin Works, Clydebank.
Heinke, C. E., & Co., 88, 89, Grange Road, Bermondsey, London, S.E.
Weir, G. & J., Ltd., Cathcart, Glasgow.

ALUMINIUM GOODS—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

ALUMINIUM PAINT—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

ANCHORS—
Hingley & Sons, Ltd., Netherton Iron Works, Dudley, Staffs.
Spencer, John, & Sons, Ltd., Steel Works, Newburn-Sykes, Richard, & Son, Ltd., Cradley Heath.
Taylor, Samuel, & Sons (Brierley Hill), Ltd., Brierley Hill, Staffs.
Wright, Joseph, & Co., Ltd., Tipton, Staffs.

ANTI-CORROSION COMPOSITIONS—
Briggs, W., & Sons, Ltd., Dundee.
Hamilton, Archd., & Co., Possilpark, Glasgow.
Holzapfel, Ltd., Newcastle-on-Tyne.
Hoyle, Robson, Barnett, & Co., Ltd., St. Nicholas Chambers, Newcastle-on-Tyne.
Milburn, A., & Co., Sunderland.
Wales Dove Bitumastic Ltd., 5, St. Nicholas Buildings, Newcastle-on-Tyne.
Websters Ltd., Hull.

ANTI-FOULING COMPOSITION—
Holzapfel, Ltd., Newcastle-on-Tyne.
Websters Ltd., Hull.

ANTI-FRICTION METALS—
Billington & Newton, Ltd., Longport, Staffs.
Bowran, Robt., & Co., Ltd., Newcastle-on-Tyne.
Delta Metal Co., Ltd., East Greenwich.
McConwell, A., & Co., Ltd., 60, Drury Buildings, Liverpool.
Armstrong, Sir W. G., Whitworth & Co., Ltd., Openshaw Works, Manchester.
Brown, John, & Co., Ltd., Atlas Works, Sheffield.

ARMOUR PLATES—
Water St., Liverpool.

ASBESTOS FITTINGS—
McRobie, John, & Sons, 94, Elliott Street, Cranstonhill, Glasgow.

ASBESTOS GOODS—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish Town, N.W.

ASH BAGS—
Walker, Jas., & Co., 11, Bishop Court, Anderston, Glasgow.

ASH BINS—
Speedings Ltd., Sail Works, Sunderland.

ASH DISCHARGING APPLIANCES—
Mactaggart, Scott & Co., Ltd., Loanhead, Edinburgh.
Trewent & Proctor, F. J., Ltd., 43, Billiter Buildings, E.C.

AWNINGS—
Speedings Ltd., Sail Works, Sunderland.

BARROWS—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

BARROWS (Cargo)—
Edina Manufacturing Co., 10b, Broad Wynd, Leith, (Glasgow).

BEDDING & NAPPERY—
Stewart, Archibald & Co., 40-48, Union Street, Glasgow.

BEMAL CONDENSER TUBES—
The Yorkshire Copper Works, Ltd., Leeds.

"BITUMASTIC" ENAMEL MANUFACTURERS—
Wales Dove Bitumastic Ltd., 5, St. Nicholas Buildings, Newcastle-on-Tyne.

BLINDS—
Laycock, W. S., Ltd., Victoria Works, Millhouses, Sheffield.

BLOCKS—
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.
Higginson & Co., 7, Hurst Street, Liverpool.

BLOWERS—
Allen, W. H., Son & Co., Ltd., Queen's Engineering Works, Bedford.
Davidson & Co., Ltd., Sirocco Engineering Works, Keith, James, & Blackman Co., Ltd., 27, Farrington Avenue, London, E.C.

BOATS—
Crichton, J., & Co., Saltney Shipyard, Chester.
Leitch, John, & Co., The Ferry, Renfrew, Scotland.

BOILERS—
Central Marine Engine Works, West Hartlepool.
Elliot & Jeffery, East Dock, Cardiff.
Harris Bros., Ltd., Cambrian Dry Docks, Swansea.
Hawthorne, R. & W. Leslie & Co., Ltd., St. Peter's, Newcastle-on-Tyne.
Howden, James, & Co., Ltd., Scotland St., Glasgow.
Perran & Co., Ltd., 82-84, Fenchurch Street, E.C.
Wallsend Slipway & Engineering Co., Ltd., Wallsend-on-Tyne.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.

BOILER CIRCULATORS—
Beresford Engineering Co., Beresford Lane, Cardiff.

BOILER CLEANER—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish Town, N.W.

BOILER COMPOSITION—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish Town, N.W.

BOILER COVERING—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish Town, N.W.

BOILER MOUNTINGS—
Walker, Jas., & Co., 11, Bishop Court, Anderston, Glasgow.
Cockburns Ltd., Cardonald, Nr Glasgow.
McRobie, John, & Sons, 94, Elliott Street, Cranstonhill, Glasgow.
Royles Ltd., Irlam, Nr. Manchester.

BOILER PLATES (Steel)—
Leeds Forge Co., Ltd., Leeds.
Spencer, John, & Sons, Ltd., Newburn-on-Tyne.
Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

BOILER PRESERVATIVE—
Atlas Preservative Co., Ltd., Deptford, S.E.

BOILER TUBES—
Yorkshire Copper Works, Ltd., Leeds.

BOLTS AND NUTS—
Coventry Chain Co., Ltd., Coventry.

BORING MACHINES—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Elswick Works, Newcastle-upon-Tyne.
Campbells & Hunter, Ltd., Dolphin Foundry, Leeds.
Greenwood & Batley, Ltd., Albion Works, Leeds.

BRASS & COPPER FITTINGS—
McRobie, John, & Sons, 94, Elliott Street, Cranstonhill, Glasgow.

BRASS & COPPER RODS—
Delta Metal Co., Delta Works, East Greenwich, London, S.E.

BRASS FOUNDERS—
Billington & Newton, Ltd., Longport, Staffs.
Chambers, John, Ltd., Lowestoft.

BRASS TUBES—
Low, Archibald, & Sons, Ltd., 78, Merkland Street, Partick, Glasgow.
McGeoch, Wm., & Co., Ltd., 28, West Campbell Street, Glasgow.
McRobie, John, & Sons, 94, Elliott Street, Cranstonhill, Glasgow.
Williams, Wm., Alexandra Brass Foundry, Cardiff.

BRASS NAME PLATES—
Metograph Co., 280, Cathedral Street, Glasgow.
Rennie & Co., North Greenhill Road, Paisley.

BRASS TUBES—
Yorkshire Copper Works, Ltd., Leeds.

BRASSWORK—
Laycock, W. S., Ltd., Victoria Works, Millhouses, Sheffield.

BRONZE (Manganese)—
Billington & Newton, Ltd., Longport, Staffs.
Bowran, Robt., & Co., Ltd., 4, St. Nicholas Buildings, Newcastle-on-Tyne.
Callender's Cable & Construction Co., Ltd., Belvedere, Kent.

BUCKETS—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

BUNTING—
Riley, Edward, & Co., Leeds.

BUOYANT DECK SEATS—
Crichton, C. & H., Ltd., Huskisson Engine Works, Linklater's Patent Ship Fittings Co., Hudson Street, North Shields.

BUOYS—
Crichton, C. & H., Ltd., Huskisson Engine Works, Liverpool.

CABINET MAKERS—
Hingley & Sons, Ltd., Netherton Iron Works, Dudley, Staffs.
Stewart, Archibald & Co., 40-48, Union Street, Glasgow.

CABLES (Chains)—
Hingley & Sons, Ltd., Netherton Iron Works, Dudley, Staffs.

CAISSONS & DOCK GATES—
Sykes, Richard, & Son, Ltd., Cradley Heath.
Taylor, Samuel, & Sons (Brierley Hill), Ltd., Brierley Hill, Staffs.
Wright, Joseph, & Co., Ltd., Tipton, Staffs.

CALORIFIERS—
Low, Archibald, & Sons, Ltd., 78, Merkland Street, Partick, Glasgow.
Royles Ltd., Irlam, Nr. Manchester.

CAPSTANS (Electric)—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Engine Works, Elswick.
British Thomson-Houston Co., Ltd., Rugby.
British Westinghouse Electric & Mfg. Co., Ltd., Trafford Park, Manchester.
Mactaggart, Scott & Co., Ltd., Loanhead, Edinburgh.

CARGO BLOCKS—
Higginson & Co., 7, Hurst Street, Liverpool.

CARPETS—
Stewart, Archibald & Co., 40-48, Union St., Glasgow.

CASE HARDENING BOXES—
Else, John, & Son, Ltd., 43, Muntz St., Birmingham.

CASE HARDENING COMPOSITION—
Else, John, & Son, Ltd., 43, Muntz St., Birmingham.

CASE HARDENING OIL—
Else, John, & Son, Ltd., 43, Muntz St., Birmingham.

CAST BRASS PLATES—
Brown, Robert, & Co., 22, Espedair St., Paisley.

CASTINGS (Steel)—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Steel Works, Elswick.
Brown, John, & Co., Atlas Works, Sheffield, and Clydebank, Nr. Glasgow.
Darlington Forge Co., Ltd., Darlington.
Spencer, John, & Sons, Ltd., Newburn-on-Tyne.
Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

CASTINGS (Steel, Iron and Brass)—
Chambers, John, Ltd., Lowestoft.
Darlington Forge Co., Ltd., Darlington.
Hamilton, A., & Sons, 13, Bute Crescent, Docks, Cardiff.
McRobie, John & Sons, 94, Elliott Street, Cranstonhill, Glasgow.

CHAINS—
"The Coventry" Chain Co., Ltd., Spon End Works, Coventry.

CHRONOMETERS—
Kelvin, Bottomley & Baird, Ltd., 16, 18, 20, Cambridge Street, Glasgow.

COAL—
Britannic Merthyr Coal Co., Ltd., Cambrian Bldgs., Cardiff.
Cambrian Collieries, Ltd., Cambrian Bldgs., Cardiff.
Davis, D., & Sons, Ltd., Cymric Bldgs., Cardiff.
Glamorgan Coal Co., Ltd., Cambrian Bldgs., Cardiff.
Harrisons (London), Ltd., 66, Mark Lane, E.C.
Naval Colliery Co. (1897), Ltd., Cambrian Bldgs., Cardiff.
Powell Duffryn Steam Coal Co., Ltd., Cardiff.

COAL-LOADING PLANT—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Elswick Works, Newcastle-upon-Tyne.

COMPASSES (Ship)—
Chadburn's (Ship) Telegraph Co., Ltd., Cyprus Road, Bootle, Lancs.
Kelvin, Bottomley & Baird, Ltd., 16, 18, 20, Cambridge Street, Glasgow.

CONDENSERS—
Belliss & Morcom, Ltd., Birmingham.
British Westinghouse Electric & Mfg. Co., Ltd., Trafford Park, Manchester.
Contraflo Condenser & Kinetic Air Pump Co., Ltd., 3, Central Buildings, Westminster, S.W.
Dawson & Downie, Elgin Works, Clydebank.
Royles Ltd., Irlam, Nr. Manchester.
Weir, G. & J., Ltd., Cathcart, Glasgow.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.

CONDENSER TUBES (Brass and Copper)—
The Yorkshire Copper Works, Ltd., Leeds.

CONTROLLERS & CONTROL GEAR—
British Westinghouse Electric & Mfg. Co., Ltd., Trafford Park, Manchester.
Holmes, J. H., & Co., Portland Road, Newcastle-Reynolds, A., & Co., Ltd., Hebburn-on-Tyne.

CONVEYORS—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Elswick Works, Newcastle-upon-Tyne.
Mather & Platt, Ltd., Manchester.

COOKING APPARATUS—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.
Grieve, T., & Sons, Bedford Street, North Shields.

COPPER PIPES—
Yorkshire Copper Works, Ltd., Leeds.

COPPERSMITHS—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.
Chambers, John, Ltd., Lowestoft.
Low, Archibald, & Sons, Ltd., 78, Merkland Street, Partick, Glasgow.
Royles Ltd., Irlam, Nr. Manchester.

COPPER TUBES—
Yorkshire Copper Works, Ltd., Leeds.

CORK INSULATION—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish Town, N.W.
Newalls Insulation Co., 31, Mosley Street, Newcastle-on-Tyne.

CORRUGATED IRON—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

COUNTER (Engine)—
Chadburn's (Ship) Telegraph Co., Ltd., Cyprus Road, Bootle, Lancs.

CRAB WINCHES—
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.

CRANES—
Ransomes & Rapier, Ltd., 32, Victoria Street, London, S.W.

CUTTERS—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Elswick Works, Newcastle-upon-Tyne.

CYLINDERS (Copper)—
The Yorkshire Copper Works, Ltd., Leeds.

DELTA METAL—
Delta Metal Co., Delta Works, East Greenwich, S.E.

DERICKS & DAVITS (Tubular Steel)—
Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

DISTILLING APPARATUS—
Royles Ltd., Irlam, Nr. Manchester.

DIVING APPARATUS—
Heinke, C. E., & Co., 88, 89, Grange Road, Bermondsey, S.E.
Mining Engineering Co., Ltd., Meco Works, Moorfields, Sheffield.

DOCK & SHIP LIGHTING—
Carbic Ltd., 51, Holborn Viaduct, London, E.C.

DOCK GATES—
Armstrong, Sir W. G., Whitworth & Co., Ltd., Engine Works, Elswick.
Chalmers, Wm., & Co., Ltd., Rutherglen, Nr. Glasgow.
Hamilton, Wm., & Co., Ltd., Port Glasgow, Scotland.
Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne.

DOORS (Watertight)—
British Thomson-Houston Co., Ltd., Rugby.
Stone, J., & Co., Ltd., Deptford, S.E.

SAY YOU SAW IT IN THE "S. & S. R."

BUYERS' GUIDE—continued.

HOSE—[Bermondsey, London, S.E.
Heinke, C. E., & Co., 88, 89, Grange Road,
HYDRAULIC CRANES—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Engine Works, Elswick.
Berry, Henry, & Co., Ltd., Croydon Works, Leeds.
Brown Brothers & Co., Ltd., Rosebank Iron
Works, Edinburgh.
Mactaggart, Scott & Co., Ltd., Loanhead, Edinburgh
HYDRAULIC MACHINERY—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Berry, Henry, & Co., Ltd., Croydon Works, Leeds.
Waygood-Otis, Ltd., Falmouth Road, S.E.
HYDRANTS—
McRobie, John, & Sons, 94, Elliott Street,
INDIARUBBER—Cranstonhill, Glasgow.
Heinke, C. E., & Co., 88, 89, Grange Road,
INDICATORS—Bermondsey, London, S.E.
Robinson, A., & Co., Ltd., Bootle, Liverpool.
INDUCED DRAUGHT—
Davidson & Co., Ltd., Sirocco Eng'g Wrks, Belfast
Keith, James, & Blackman Co., Ltd., 27, Farringdon
Avenue, London, E.C.
INSULATIONS—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish
Town, N.W. [Liverpool.
Liverpool Refrigeration Co., Ltd., Colonial House,
IRON ROOFS AND BUILDINGS—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.
JOINTING MATERIAL (Manganeseite)—
Hudson & Co.'s Successors, John, 15, Victoria
Warehouses, Mansell Street, E.C.
LAMPS AND LIGHTS—
Grieve, T., & Sons, Bedford Street, North Shields.
Kaye, Joseph, & Sons, Ltd., Leeds.
Kelvin, Bottomley & Baird, Ltd., 16, 18, 20,
LATHES—Cambridge Street, Glasgow.
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
LAUNCHES—
Chambers, John, Ltd., Lowestoft.
Crichton, J., & Co., Saltney Shipyard, Chester.
Leitch, John, & Co., The Ferry Renfrew, Scotland.
Livingstone & Cooper, Ltd., Hesse, Hull.
MacLaren Bros., Ltd., Dumbarton.
Perman & Co., Ltd., 82-83, Fenchurch St., E.C.
Seamless Steel Boat Co., Ltd., Wakefield.
Thornycroft, John I., & Co., Ltd., Caxton House,
Westminster, London, S.W.
Watson, J. S., Gainsborough.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.
LAUNDRY MACHINERY—
Bradford, T., & Co., Salford, Manchester.
**LAVATORY FITTINGS AND
APPLIANCES**—
Levick, John, Alma Street, Aston, Birmingham.
LEAD (Sheets and Pipes)—
Rimer Bros., Newcastle-upon-Tyne.
LEAD (White and Red)—
Rimer Bros., Newcastle-upon-Tyne.
LIFEBELTS AND BUOYS—
Speedings Ltd., Nail Works, Sunderland.
LIFTS (Window)—
Laycock, W. S., Ltd., Victoria Works, Millhouses,
LIFTS AND HOISTS—Sheffield.
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Mactaggart, Scott & Co., Ltd., Loanhead, Edinburgh
Waygood-Otis, Ltd., Falmouth Road, S.E.
LIGHTFRAGE—
Alexander, W. H. J., St. John's Wharf, Wapping, E.
LIGHTERS—[Glasgow.
Chalmers, Wm., & Co., Ltd., Rutherglen, Nr.
Crichton, J., & Co., Saltney Shipyard, Chester.
Watson, J. S., Gainsborough.
LOCKS—
Kaye, Joseph, & Sons, Ltd., Leeds.
LOCOMOTIVE TUBES (Copper & Brass)—
The Yorkshire Copper Works, Ltd., Leeds.
LUBRICATORS—[Cranstonhill, Glasgow.
McRobie, John, & Sons, 94, Elliott Street,
MACHINE TOOLS—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Openshaw Works, Manchester.
Campbells & Hunter, Ltd., Dolphin Foundry, Leeds.
Greenwood & Batley, Ltd., Albion Works, Leeds.
Scriven & Co., Leeds Old Foundry, Leeds.
MACHINERY NAME PLATES—
Brown, Robert, & Co., 12, Espedair St., Paisley.
MAGNESIA—
Jones, Fredk., & Co., Ltd., Perren Street, Kentish
Town, N.W.
MARINE ENGINEERS—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Bailey, C. H., Newport, Mon. [Barry Docks.
Barry Graving Dock & Engineering Co., Ltd.,
Brown, John, & Co., Ltd., Clydebank, Nr. Glasgow.
Chambers, John, Ltd., Lowestoft.
Crichton, C. & H., Ltd., Huskisson Engine Works,
Liverpool. [Southampton.
Day, Summers & Co., Ltd., Northam Ironworks,
Delegación de la Compañía Transatlantica, Cadiz.
Diamond, Thos., & Co., Cardiff.
Doxford, Wm., & Sons, Ltd., Sunderland.
Elliot & Jeffery, East Dock, Cardiff.
Gray, Wm., & Co., Ltd., West Hartlepool.
Harland & Wolff, Ltd., Belfast.
Harris Bros., Ltd., Cambrian Dry Dock, Swansea.
Hawthorne, R. & W., Leslie & Co., Ltd.,
Hebburn-upon-Tyne.
Hill's Dry Docks & Engineering Co., Ltd., Cardiff.

MARINE ENGINEERS (contd.)—
Isherwood, J. W., 4, Lloyd's Avenue, London, E.C.
Livingstone & Cooper, Ltd., Hesse, Hull.
Mactaggart, Scott & Co., Ltd., Loanhead, Edinburgh.
Perman & Co., Ltd., 82-83, Fenchurch St., E.C.
Shearman, John, & Co., Ltd., London.
Sinners, Wm., & Co., Ltd., Renfrew, Nr. Scotland.
Swan, Hunter, & Wigham Richardson, Ltd.,
Wallsend-upon-Tyne. [Westminster, S.W.
Thornycroft, John I., & Co., Ltd., Caxton House,
Wallsend Shipway & Engineering Co., Ltd.,
Wallsend-upon-Tyne.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.
Workman Clark & Co., Ltd., Belfast.
Yarrow & Co., Ltd., Glasgow.
MARINE GOVERNORS—
Aspinall's Patent Governor Co., 7, Strand Street,
MARKING-OFF TABLES—Liverpool
Campbells & Hunter, Ltd., Dolphin Foundry, Leeds.
MATTRESSES—
Stewart, Archibald, & Co., 40-48, Union St., Glasgow
METALLIC PACKING—
McConwell, A., & Co., Ltd., 60, Drury Buildings,
Water Street, Liverpool.
United States Metallic Packing Co., Ltd., Bradford
METAL SPINNINGS—
Levick, John, Alma Street, Aston, Birmingham.
METALS (Patent)—
Bowman, Robt., & Co., Ltd., Newcastle-upon-Tyne.
Delta Metal Co., Ltd., Delta Works, East
Greenwich.
MILLING CUTTERS—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
MOTOR BOATS—
Chambers, John, Ltd., Lowestoft.
Crichton, J., & Co., Saltney Shipyard, Chester.
Leitch, John, & Co., The Ferry Renfrew, Scotland.
Livingstone & Cooper, Ltd., Hesse, Hull.
Perman & Co., Ltd., 82-83, Fenchurch St., E.C.
Seamless Steel Boat Co., Ltd., Wakefield.
Thornycroft, John I., & Co., Ltd., Caxton House,
Westminster, London, S.W.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.
**MOTOR STARTING AND CONTROL
GEAR**—[on-Tyne.
Holmes, J. H., & Co., Portland Road, Newcastle-
Reynolds, A., & Co., Ltd., Hebburn-upon-Tyne.
NAVAL ARCHITECTS' SUPPLIES—
Walker, Jas., & Co., 11, Bishop Court, Anderston,
Glasgow.
OIL CANS—
Kaye, Joseph, & Sons, Ltd., Leeds.
OIL ECONOMISERS—
Kaye, Joseph, & Sons, Ltd., Leeds.
OIL ENGINES—
British Westinghouse Electric & Mfg. Co., Ltd.,
Trafford Park, Manchester.
Edina Manufacturing Co., 19b, Broad Wynd, Leith.
Perman & Co., Ltd., 82-83, Fenchurch Street, E.C.
Swan, Hunter, & Wigham Richardson, Ltd.,
Wallsend-upon-Tyne.
Thornycroft, John I., & Co., Ltd., Caxton House,
Westminster, S.W.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.
OIL-FUEL INSTALLATION—
Wallsend Shipway & Engineering Co., Ltd.,
Wallsend-upon-Tyne.
White, J. Samuel, & Co., Ltd., East Cowes, I.W.
OIL IMPORTERS & BLENDEES—
Rimer Bros., Newcastle-upon-Tyne.
PACKING—
Beldam Packing & Rubber Co., Ltd.; 1 and 2,
Gracechurch Street, London, E.C.
Walker, Jas., & Co., Ltd., Lion Works, Garford
Street, West India Dock Road, E.
PAINTS—
Briggs, W., & Sons, Ltd., Dundee.
Cocks, Harry, & Co., Cardiff.
Hamilton, Archd., & Co., Possilpark, Glasgow.
Hyle, Robert, Barnett, & Co., Ltd., St. Nicholas
Chambers, Newcastle-upon-Tyne.
Wailles, Dove & Co., Ltd., 5, St. Nicholas Build-
ings, Newcastle-upon-Tyne.
Websters Ltd., Hull.
PANELLING—
Stewart, Archibald, & Co., 40-48, Union St., Glasgow
**PATENT HAWSE PIPE AND DECK
FLANGE**—
Hamilton, A., & Sons, 13, Bute Crescent, Docks,
Cardiff.
PERFORATED METALS—
Braby F., & Co., Ltd., Eclipse Works, Glasgow.
Piggott, T., & Co., Ltd., Birmingham.
PIPES—
Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.
The Yorkshire Copper Works, Ltd., Leeds.
PLANING MACHINES for Plate Edges—
Scriven & Co., Leeds Old Foundry, Leeds.
PLATE BENDING ROLLS—
Scriven & Co., Leeds Old Foundry, Leeds.
**PORCELAIN ENAMELLED CAST
IRON**—
Levick, John, Alma Street, Aston, Birmingham.
PROPELLERS—
Billington & Newton, Ltd., Longport, Staffs.
Chambers, John, Ltd., Lowestoft. [Liverpool.
Crichton, C. & H., Ltd., Huskisson Engine Works,
Darlington Forge Co., Ltd., Darlington.
Spencer, John, & Sons, Ltd., Newburn-upon-Tyne.
PROPELLER BLADES—
Billington & Newton, Ltd., Longport, Staffs.
Darlington Forge Co., Ltd., Darlington.
Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

PUBLICATIONS—
"Shipbuilding and Shipping Record," Queen
Anne's Chambers, Westminster, London, S.W.
PULLEY BLOCKS—
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.
Higginson & Co., 7, Hurst Street, Liverpool.
Loweridge, Ltd., Cardiff.
Wright, Joseph, & Co., Ltd., Tipton, Staffs.
PUMPING ENGINES—
Central Marine Engine Works, West Hartlepool.
PUMPS—[ing Works, Bedford.
Allen, W. H., Son & Co., Ltd., Queen's Engineer
Works, Bedford.
Berry, Henry, & Co., Ltd., Croydon Works, Leeds.
Dacey & Co. (London), Ltd., 83, West India Dock
Road, E.
Dawson & Downie, Elgin Works, Clydebank.
Edina Manufacturing Co., 19b, Broad Wynd, Leith.
Hall, J. P., & Sons, Ltd., Peterborough.
Mather & Platt, Ltd., Manchester.
Weir, G. & J., Ltd., Cathcart, Glasgow.
**PUNCHING AND SHEARING
MACHINES**—
Scriven & Co., Leeds Old Foundry, Leeds.
RADIATORS—
Ashwell & Nesbit, Ltd., Barkby Lane, Leicester.
British Thomson-Houston Co., Ltd., Rugby.
Low, Archibald, & Sons, Ltd., 78, Merkleland
Street, Partick, Glasgow.
Royles Ltd., Irlam, Nr. Manchester.
RADIATOR TUBES—
The Yorkshire Copper Works, Ltd., Leeds.
REAMERS—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Chatwin, Thos., Ltd., Gt. Tindal St., Birmingham.
REFRIGERATING MACHINERY—
Hall, J. & E., Ltd., Dartford Ironworks, Kent.
Liverpool Refrigeration Co., Ltd., Colonial House,
Liverpool.
Sterne, L. & Co., Ltd., Crown Iron Works, Glasgow
RESCUE APPLIANCES—
Mining Engineering Co., Ltd., Meco Works,
Moorfields, Shemeld.
**REVERSING ENGINES (Direct-Acting
Type)**—[Works, Edinburgh.
Brown Brothers & Co., Ltd., Rosebank Iron
Mactaggart, Scott & Co., Ltd., Loanhead, Edinburgh
**RHEOSTATS & RESISTANCES (all
kinds)**—
British Thomson-Houston Co., Ltd., Rugby.
British Westinghouse Electric & Mfg. Co., Ltd.,
Trafford Park, Manchester. [on-Tyne.
Holmes, J. H., & Co., Portland Road, Newcastle-
Reynolds, A., & Co., Ltd., Hebburn-upon-Tyne.
ROPE-CUTTING MACHINES—
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.
ROPES (Wire)—
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.
**ROUND AND OVAL HOLE CUTTING-
OUT MACHINES**—
Campbells & Hunter, Ltd., Dolphin Foundry, Leeds.
RUBBER GOODS—
Heinke, C. E., & Co., 88, 89, Grange Road,
Bermondsey, London, S.E.
RUBBER HOSE—
Heinke, C. E., & Co., 88, 89, Grange Road,
Bermondsey, London, S.E.
RUSTLESS IRON—
Braby, F., & Co., Ltd., Eclipse Works, Glasgow.
SAFE MANUFACTURERS—
Whitfield's Safe & Door Co., Oxford Street,
Birmingham.
SALOON LIGHTS—
Callender's Cable & Construction Co., Ltd.,
Belvedere, Kent.
Laycock, W. S., Ltd., Victoria Works, Millhouses,
SALVAGE—
Alexander, W. H. J., St. John's Wharf, Wapping, E.
**SANITARY FITTINGS AND
APPLIANCES**—
Levick, John, Alma Street, Aston, Birmingham.
SCREWING MACHINES—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Chatwin, Thos., Ltd., Gt. Tindal St., Birmingham.
SHAFTING—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Brown, John, & Co., Ltd., Atlas Works, Sheffield.
Darlington Forge Co., Ltd., Darlington.
Spencer, John, & Sons, Ltd., Newburn-upon-Tyne.
SHAPING MACHINES—
Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Greenwood & Batley, Ltd., Albion Works, Leeds.
SHEAVES—
Higginson & Co., 7, Hurst Street, Liverpool.
**SHEERS, TRAVERSING (land and
floating)**—
Day, Summers & Co., Ltd., Northam Ironworks,
Southampton
SHIP APPLIANCES—
Linklater's Patent Ship Fittings Co., 20, Percy
Street, Tynemouth.
SHIP BROKERS—
Hall, Edward, Cardiff.
Pinkney, Thos., & Sons, Sunderland.
Walford, Leopold & Co., 29, Gt. St. Helens, E.C.

BUYERS' GUIDE—continued.

SHIPBUILDERS—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.
Brown, John, & Co., Ltd., Chatham, Kent.
Cammell, Laird & Co., Ltd., Rochester, N.Y.
Chalmers, John, Ltd., Lowestoft.
Clyde Shipbuilding Co., Ltd., Glasgow.
Day, Summers & Co., Ltd., Northampton.
Deane & Carter, Ltd., Glasgow.
Duncan, James, Ltd., Glasgow.
Gray, Wm., & Co., Ltd., Glasgow.
Hamilton, Wm., & Co., Ltd., Glasgow.
Hawthorne, R. & W., Ltd., Glasgow.
Islerwood, J. W., 4, Lloyd's Avenue, London, E.C.
Laycock, W. S., Ltd., Victoria Works, Millhouses,
Sheffield.
Linkers, Robert Ship Fittings Co., Hudson
Loveridge, Ltd., Cardiff.
McGeoch, Wm., & Co., Ltd., 28, West Campbell
Street, Glasgow.
Metallic Valve Co., Colonial House, Water Street,
Stewart, Archibald, & Co., 40-48, Union Street,
Glasgow.
Waygood-Otis, Ltd., Falmouth Road, S.E.

SHIP CONSTRUCTION—

Brown, John, & Co., Ltd., Chatham, Kent.
Islerwood, J. W., 4, Lloyd's Avenue, London, E.C.
Simons, Wm., & Co., Ltd., Renfrew, N. Scotland.

SHIP FURNISHINGS & FITTINGS—

Chalmers, John, Ltd., Lowestoft.
Laycock, W. S., Ltd., Victoria Works, Millhouses,
Sheffield.
Linkers, Robert Ship Fittings Co., Hudson
Loveridge, Ltd., Cardiff.
McGeoch, Wm., & Co., Ltd., 28, West Campbell
Street, Glasgow.
Metallic Valve Co., Colonial House, Water Street,
Stewart, Archibald, & Co., 40-48, Union Street,
Glasgow.
Waygood-Otis, Ltd., Falmouth Road, S.E.

SHIP LAVATORIES—

Stewart, Archibald, & Co., 40-48, Union St., Glasgow

SHIP PLATES (Steel)—

Spencer, John, & Sons, Ltd., Newburn-on-Tyne.
Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

SHIP REPAIRERS—

Bailey, C. H., Newport, Mon.
Crichton, C. & H., Ltd., Huskisson Engine Works,
Liverpool.
Day, Summers & Co., Ltd., Northampton.
Diamond, Thos., & Co., Cardiff.
Dodd, Wm., & Sons, Ltd., Sunderland.
Gray, Wm., & Co., Ltd., West Hartlepool.
Harland & Wolff, Ltd., Belfast.
Hawthorne, R. & W., Ltd., Glasgow.
Hebburn-on-Tyne.
Hill, Day & Co., Engineering Co., Ltd., Cardiff.
Mason, John, & Co., Ltd., Cardiff.
Shearman, John, & Co., Ltd., Cardiff.
Swan, Hunter, & Wigham Richardson, Ltd.,
Wellington, N.Z.
Watt, John, & Co., Ltd., Glasgow.
Yarrow & Co., Ltd., Glasgow.

SHIPS' ELECTRIC FITTINGS—

McGeoch, Wm., & Co., Ltd., 28, West Campbell
Street, Glasgow.

SHIPS' LAUNDRIES—

Sunderland Forge & Engineering Co., Ltd.,
Sunderland.

SHIPS' TELEGRAPHS—

Chadburn's (Ship) Telegraph Co., Ltd., Cyprus
Road, Bootle, Lancs.
Robinson, A., & Co., Ltd., Bootle, Liverpool.

SIGNAL FLASHING AND CABIN
LAMPS—

McGeoch, Wm., & Co., Ltd., 28, West Campbell
Street, Glasgow.

SILICATE-COTTON

SPECIALITIES— (Glasgow.)

Walker, Jas., & Co., 11, Bishop Court, Anderston.

SKYLIGHT & LIFTING GEARS—

Low, Archibald, & Sons, Ltd., 78, Merkland
Street, Partick, Glasgow.

SLAG WOOL (Silicate Cotton)—

Jones, Fredk., & Co., Ltd., Perren Street, Kentish
Town, N.W.

SLEWING GEAR (for Ships' Derricks)—

Edina Manufacturing Co., 19b, Broad Wynd,
Leith.

SMITHS' HEARTHS—

Keith, James, & Blackman Co., Ltd., 27, Farringdon
Avenue, London, E.C.

SOLDER—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

SOUNDING MACHINES—

Kelvin, Bottomley & Baird, Ltd., 16, 18, 20,
Cambridge Street, Glasgow.

SPEAKING TUBES—

Durham, Churchill & Co., Grimesthorpe, Sheffield.

SPELTER—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

SPIRAL SPRINGS—

Cockburns Ltd., Cardonald, N. Glasgow.

Sterne, L., & Co., Ltd., Crown Iron Works, Glasgow.

STAMPINGS—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Delta Metal Co., Ltd., East Greenwich.

STAYBOLTS—

Boyle & Sons, Ltd., Netherston Iron Works,
Dudley, Staffs.

STEAM-FITTING

MANUFACTURERS—

Billington & Newton, Ltd., Longport, Staffs.

Royles Ltd., Irlam, N. Manchester.

STEAM-HEATING—

Low, Archibald, & Sons, Ltd., 78, Merkland
Street, Partick, Glasgow.

Royles Ltd., Irlam, N. Manchester.

STEAM KETTLES—

Royles Ltd., Irlam, N. Manchester.

STEAM PIPES—

Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

Yorkshire Copper Works, Ltd., Leeds.

STEAM TRAPS—

Cockburns Ltd., Cardonald, N. Glasgow.

Royles Ltd., Irlam, N. Manchester.

STEAM TURBINES—

Belliss & Morcom, Ltd., Birmingham.

British Thomson-Houston Co., Ltd., Rugby.

British Westinghouse Electric & Mfg. Co., Ltd.,
Trafford Park, Manchester.

Greenwood & Batley, Ltd., Albion Works, Leeds.

Howden, James, & Co., Ltd., Scotland St., Glasgow.

White, J. Samuel, & Co., Ltd., East Cowes, I.W.

STEAMSHIP SPECIALITIES—

Laycock, W. S., Ltd., Victoria Works, Millhouses,
Sheffield.

Metallic Valve Co., Colonial House, Water Street,
Liverpool.

STEEL—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.

Brown, John, & Co., Atlas Works, Sheffield.

Spencer, John, & Sons, Ltd., Newburn-on-Tyne.

STEEL BARGES—

Crichton, J., & Co., Saltney Shipyard, Chester.

Watson, J. S., Gainsborough.

STEEL BOATS—

Crichton, J., & Co., Saltney Shipyard, Chester.

Leitch, John, & Co., The Ferry, Renfrew, Scotland.

Seamless Steel Boat Co., Ltd., Wakefield.

STEEL MAKERS—

Brown, John, & Co., Atlas Works, Sheffield.

Darlington Forge Co., Ltd., Darlington.

Spencer, John, & Sons, Ltd., Newburn-on-Tyne.

STEEL PLATES AND SHEETS—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

STEERING-GEAR—

(Works, Edinburgh.)

Brown Brothers & Co., Ltd., Rosebank Iron
Chambers, John, Ltd., Lowestoft.

Crichton, C. & H., Ltd., Huskisson Engine Works,
Liverpool.

Hastie, John, & Co., Ltd., Greenock.

Higginson & Co., 7, Hurst Street, Liverpool.

STEERING GEAR (Buffers)—

Loveridge, Ltd., Cardiff.

STEERING TELEMOTORS—

Irwin Brothers & Co., Ltd., Rosebank Iron
Works, Edinburgh.

MacTaggart, Scott & Co., Ltd., Loanhead, Edinburgh

STOCKS AND DIES—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.

Chatwin, Thos., Ltd., Gt. Tindal St., Birmingham.

STORES (Ship)—

Walker, Jas., & Co., 11, Bishop Court, Anderston,
Glasgow.

STRONG ROOM MANUFACTURERS—

Whitfield's Safe & Door Co., Oxford St., Birmingham

STRONG ROOM DOOR

MANUFACTURERS—

Whitfield's Safe & Door Co., Oxford St., Birmingham

STRUCTURAL ENGINEERS—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

SUPERHEATERS—

Central Marine Engine Works, West Hartlepool.

Superheater Corporation, Ltd., Palace Chambers,
9, Bridge Street, Westminster, S.W.

SUSPENSION BULB FURNACE—

Leeds Forge Co., Ltd., Leeds.

SWINGBRIDGES—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.

British Westinghouse Electric & Mfg. Co., Ltd.,
Trafford Park, Manchester.

Holmes, J. H., & Co., Portland Road, Newcastle-
Mather & Platt, Ltd., Manchester.

McGeoch, Wm., & Co., Ltd., 28, West Campbell
Street, Glasgow.

Reynolds, A., & Co., Ltd., Hebburn-on-Tyne.

Sunderland Forge & Eng'g Co., Ltd., Sunderland.

SWITCHGEAR & INSTRUMENTS—

British Westinghouse Electric & Mfg. Co., Ltd.,
Trafford Park, Manchester.

Holmes, J. H., & Co., Portland Road, Newcastle-
Reynolds, A., & Co., Ltd., Hebburn-on-Tyne.

SYRENS—

McRobie, John, & Sons, 94, Elliott Street,
Cranstonhill, Glasgow.

TANK TOP COVERING—

Hamilton, Archd., & Co., Possilpark, Glasgow.

Wales & Co., Ltd., 1, St. Nicholas
Road, Newcastle-upon-Tyne.

TANKS—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

Mather & Platt, Ltd., Manchester.

TARPAULINS—

Speedings Ltd., Sail Works, Sunderland.

TELEPHONES—

Graham, Alfred, St. Andrew's Works, Crofton
Park Road, S.E.

Kelvin, Bottomley & Baird, Ltd., 16, 18, 20,
Cambridge Street, Glasgow.

McGeoch, Wm., & Co., Ltd., 28, West Campbell
Street, Glasgow.

TESTING MACHINES—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.

TIMEPIECES—

Chadburn's (Ship) Telegraph Co., Ltd., Cyprus
Road, Bootle, Lancs.

Kelvin, Bottomley & Baird, Ltd., 16, 18, 20,
Cambridge St., Glasgow.

TOOL STEEL—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.

Brown, John, & Co., Atlas Works, Sheffield.

TOWAGE—

Alexander, W. H. J., St. John's Wharf, Wapping, E.

Tilbury Contracting & Dredging Co., Ltd., Queen
Anne's Chambers, Westminster, London, S.W.

TUBE PLATE CUTTING-OUT

MACHINES—

Campbells & Hunter, Ltd., Dolphin Foundry, Leeds.

TUBES—

Stewarts & Lloyds, Ltd., 41, Oswald St., Glasgow.

Royles Ltd., Irlam, N. Manchester.

The Yorkshire Copper Works, Ltd., Leeds.

TUBES (Brass and Copper)—

Yorkshire Copper Works, Ltd., Leeds.

TURBINE OIL—

Rimer Bros., Newcastle-upon-Tyne.

TURBINES—

Belliss & Morcom, Ltd., Birmingham.

British Thomson-Houston Co., Ltd., Rugby.

British Westinghouse Electric & Mfg. Co., Ltd.,
Trafford Park, Manchester.

Greenwood & Batley, Ltd., Albion Works, Leeds.

Hawthorne, R. & W., Leslie & Co., Ltd.,
St. Peter's, Newcastle-upon-Tyne.

Mather & Platt, Ltd., Manchester.

TWIST DRILLS—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Elswick Works, Newcastle-upon-Tyne.

Brown, John, & Co., Atlas Works, Sheffield.

Chatwin, Thos., Ltd., Gt. Tindal St., Birmingham.

UPHOLSTERERS—

Stewart, Archibald, & Co., 40-48, Union St., Glasgow

VACUUM CLEANERS—

The British Vacuum Cleaner Co., Ltd., 77, Parsons
Green Lane, Fulham, S.W.

VALVES—

Cockburns Ltd., Cardonald, N. Glasgow.

Mather & Platt, Ltd., Manchester.

McRobie, John, & Sons, 94, Elliott Street,
Cranstonhill, Glasgow.

Metallic Valve Co., Colonial House, Water Street,
Royles Ltd., Irlam, N. Manchester.

VALVE RE-SEATER—

Brooke, G., Lloyds Bank Chambers, Docks,
Cardiff.

Greenwood & Batley, Ltd., Albion Works, Leeds.

VENTILATORS—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.

Grieve, T., & Sons, Bedford Street, North Shields.

Laycock, W. S., Ltd., Victoria Works, Millhouses,
Sheffield.

Loveridge, Ltd., Cardiff.

Low, Archibald, & Sons, Ltd., 78, Merkland St.,
Partick, Glasgow.

WAR MATERIAL—

Armstrong, Sir W. G., Whitworth & Co., Ltd.,
Ordnance, Elswick.

Brown, John, & Co., Atlas Works, Sheffield.

WELDING & CUTTING—

Carbic Ltd., 51, Holborn Viaduct, London, E.C.

WINCHES—

(ing Works, Bedford.)

Allen, W. H., Son & Co., Ltd., Queen's Engineer-
Bullivant & Co., Ltd., 72, Mark Lane, London, E.C.

Crichton, C. & H., Ltd., Huskisson Engine Works,
Liverpool.

Higginson & Co., 7, Hurst Street, Liverpool.

Sunderland Forge & Engineering Co., Ltd.,
Sunderland.

WINDLASSES—

Chambers, John, Ltd., Lowestoft.

Crichton, C. & H., Ltd., Huskisson Engine Works,
Liverpool.

Edina Manufacturing Co., 19b, Broad Wynd, Leith.

WIRE-ROPE COMPRESSORS—

Edina Manufacturing Co., 19b, Broad Wynd, Leith.

WOOD-WORKING MACHINERY—

Adam, J. M., & Co., Greenfield Iron Works,
Dalmarock, Glasgow.

Wadkin & Co., North Evington, Leicester.

WORK TABLES—

Campbells & Hunter, Ltd., Dolphin Foundry, Leeds

YACHT BUILDERS—

Chambers, John, Ltd., Lowestoft.

Crichton, J., & Co., Saltney Shipyard, Chester.

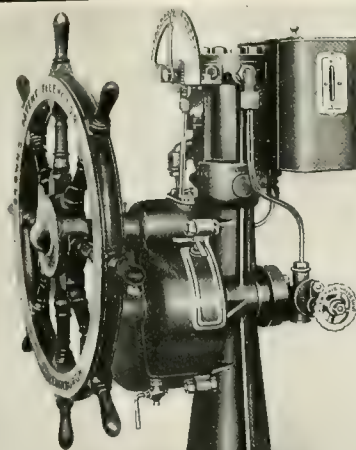
Leitch, John, & Co., The Ferry, Renfrew, Scotland.

White, J. Samuel, & Co., Ltd., East Cowes, I.W.

Yarrow & Co., Ltd., Glasgow.

ZINC—

Braby, F., & Co., Ltd., Eclipse Works, Glasgow.



PATENT HYDRAULIC STEERING TELEMOTOR.

BROWN'S STEERING GEARS

Steam, Hydraulic and Electro-Hydraulic.

TELEMOTORS FOR STEERING AND HELM SIGNALS.

COMPLETE INSTALLATIONS OF HYDRAULIC CARGO WORKING GEAR FOR SHIPS.

DIRECT-ACTING REVERSING AND TURBINE CONTROL ENGINES.

ELECTRO-HYDRAULIC STEERING GEARS, WINCHES, CRANES, BOAT HOISTS, CAPSTANS, &c.

IRON FOUNDERS.

BRASS FOUNDERS.

ON ADMIRALTY LIST.

BROWN BROTHERS & CO., Ltd.,

Rosebank Ironworks, EDINBURGH.

Telegrams—"HYDRAULIC."

Telephone—CENTRAL 8931-2.

Unaffected by Heat Cold Damp
COVENTRY
NOISELESS CHAINS
 provide most economical and efficient transmission
 Handbook C3 on Chain Gearing Free
 'The Coventry' Chain Co., Ltd., Coventry, England.



LETTERS for SHIPS' NAMES, CABIN DOOR PLATES, ENGINEERS' PLATES, and all kinds of Name Plates.

ADMIRALTY CONTRACTORS.

RENNIE & CO.,
 NORTH GREENHILL RD., PAISLEY

THOS. DIAMOND & CO.,

Engineers, Bollermakers, General Ship Repairers and Boat Builders, CARDIFF.

Commercial Dry Dock, 600 feet x 60 feet.

OXY-ACETYLENE WELDING A SPECIALITY.

Telegrams: "Decks, Cardiff." Telephone: 4746 (Private Branch Exchange).

LARGEST DRY DOCKS IN THE BRISTOL CHANNEL.

BARRY GRAVING DOCK & ENGINEERING CO., LTD.

Best Facilities for Dispatch of Repairs of every description.

TELEGRAMS: "BARDOCK, BARRY." TELEPHONES: { No. 290 BARRY (5 lines.)
 { No. 7 BARRY (night calls.)

WM. WILLIAMS, Alexandra Brass Foundry, CARDIFF.

BRASS FOUNDER & FINISHER.

SPECIALTY: GUNMETAL CASTINGS FOR ALL TYPES OF MARINE ENGINE WORK.

Brazing Metal Flanges, Copper Hammers, Hose Couplings, Lead Hammers, Sounding Leads, &c., &c. Tel. 1812.

JOHN SHEARMAN & CO., LIMITED

CARDIFF. BARRY. NEWPORT. AVONMOUTH.

UP-TO-DATE PLANTS FOR QUICK REPAIRS
 —PNEUMATIC AND ELECTRIC DRILLS—

Dry Docks { Barry - 4 Steamers Avonmouth - 2 Steamers
 for { Cardiff - 2 " Newport - 2 " Telegrams: { each place)
 { "Shearman."

TELEGRAPHS

ENGINE, DOCKING, STEERING, &c.

A. ROBINSON & Co., Ltd., Knowsley Rd., Bootle.

Contractors to British Admiralty and Foreign Governments.



FLAGS. BUY FROM FLAG MAKERS.

ON ADMIRALTY LIST.

FLAGS OF ALL NATIONALS.

EDWARD RILEY & CO., LEEDS.

Telegrams "Flags, Leeds." Telephone 765.
 Glasgow Branch—A. GRAY, 141, Bath Street.
 Teleg. "Vulcan, Glasgow." Tel. 2442 Douglas.

CASE HARDENING COMPOSITION.

CASE HARDENING BOXES.

CASE HARDENING OIL.

BRITISH MADE.

JOHN ELSE & SON, Ltd., 48, Muntz St., Birmingham.

LIVERPOOL PATENTS CO., LTD. PATENT "TRIDENT" FIREBARS

36,000 Furnaces already fitted.

Branches:—London, Glasgow, West Hartlepool.

Agencies:—Cardiff, Sunderland, etc., and abroad.

Head Offices:—DERBY SQUARE, JAMES ST., LIVERPOOL.

WEBSTERS COMPOSITIONS

Satisfactory Results.
 Reasonable in Cost.

FOR SHIPS' BOTTOMS, Etc.

Used by Shipowners for

SIXTY YEARS—and are TO THE FORE TO-DAY.

Agents and Stocks
 at Various Ports.

Telegraphic Address:
 "Enamel" Hull.

WEBSTERS LIMITED, HULL.

Telephone:
 No. 734 Corporation.

10

A			I			S		
Allen, W. H., Son & Co., Ltd.	...	1	Isleworth, I. W.	...	10	Safety Porthole Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Jones, Frank, & Co., Ltd.	...	11	Sandlers & Taylor, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	K	...	...	Stevens & Co.	...	21
Allen, W. H., Son & Co., Ltd.	...	1	Kaye, Joseph & Sons, Ltd.	...	...	Seamless Steel Boat Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Keith, Robert & Co., Ltd.	...	...	Search-Light Marine Paint Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Kelvin, Bottomley & Baird, Ltd.	...	...	Shearman, John, & Co., Ltd.	...	19
Allen, W. H., Son & Co., Ltd.	...	1	L	...	...	Simons Bros. & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Lampert & Holt, Ltd.	...	13	Simons, Wm., & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Laws, Wm. Hughes & Co., Ltd.	...	...	Smith, John, & Son (Glasgow), Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Laycock, W. S., Ltd.	...	11	Speedings, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	11	Spencer, John, & Sons, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Stearns, J., & Co., Ltd.	...	8
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Stone, J., & Co., Ltd.	...	1
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Stothert & Pitt, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Stewart & Lloyd's, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Stewart, Arch., & Co.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Sunderland Forge & Engineering Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Superheater Corporation, Ltd.	...	7
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Swain, J., & Son, Ltd.	...	21
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Swan, Hunter & Wigham Richardson, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Sykes, R., & Sons, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	T	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Taylor, Samuel, & Sons	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Thornycroft, John I., & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Tilbury Contracting & Dredging Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Trewent, F. J., & Proctor, Ltd.	...	1
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	U	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	United States Metallic Packing Co.	...	8
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	W	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Wadkin & Co.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Walford, Leopold, & Co.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Walker, James, & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Walker, James (Glasgow)	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Wailles Dove Bitumastic Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Wallsend Slipway & Eng'g Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Watson, J. S.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Waygood-Oris, Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Websters Ltd.	...	19
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Weir, G. & J., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Welin David & Engineering Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Westinghouse Brake Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	White, J. Samuel, & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Whitfield's Safe and Door Co.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Williams, Wm.	...	1
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Wilson, Hy., & Co.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Workman, Clark & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Wright, Joseph, & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Yarrow & Co., Ltd.	...	...
Allen, W. H., Son & Co., Ltd.	...	1	Leach, J. & Co., Ltd.	...	...	Yorkshire Copper Works, Ltd.	...	...

* Where no number is shown against an Advertiser's name, the advertisement appears either in previous or subsequent issues.
Classified Index to Advertisers will be found on pages 15, 16, 17 and 18.

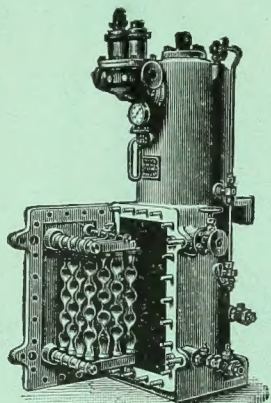
for

SAV YOU SAW IT IN THE "S. & S. R."

ROW'S PATENT EVAPORATORS

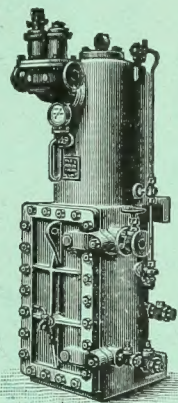
FRESH WATER CONDENSERS. FEED WATER HEATERS.

HIGHER DUTY, LESS WEIGHT,
MORE COMPACT,
THAN ANY OTHER SYSTEM.



THE "ROW" EVAPORATOR.

Shown open for Cleaning.



Closed.

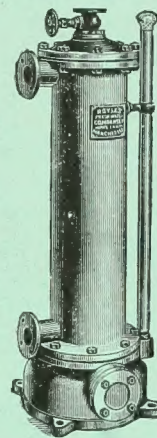
Row's Patent Tube, shown in the margin, which is the leading feature of these Specialities, is **Twice as Efficient** as plain round tube service, and the advantage accruing is obvious. The Tube has a remarkable property of casting scale.

Full Descriptive Lists sent on application.

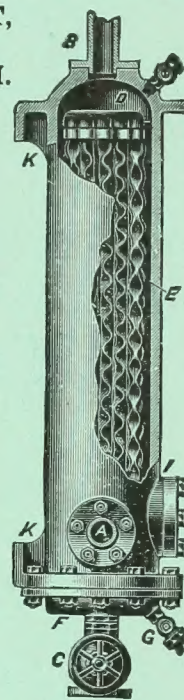
ROYLES LIMITED, ENGINEERS AND SPECIALISTS,
Dalham Works, IRLAM, near MANCHESTER.

Telegrams—ELYOR, CADISHEAD.

Instantaneous
Water Heater for
Ships' Baths &
Lavatories.



FRESH WATER
CONDENSER.



LIVE STEAM
HEATER.

SWAIN'S BLOCKS

— GIVE BRILLIANT RESULTS AND —
ALWAYS LEAVE A GOOD IMPRESSION.

.....

Engineers' requirements in the matter of illustration are thoroughly understood by us, and we shall welcome your enquiries

JOHN SWAIN & SON, LTD.,
Columbia House, 89-90, Shoe Lane, E.C.

WORKS: High Barnet.

BRANCHES:
Glasgow, Manchester and Paris.

SCRIVEN & CO.

LEEDS OLD FOUNDRY,
LEEDS.

Tel. Add.: "SCRIVEN."
'Phone 1819.

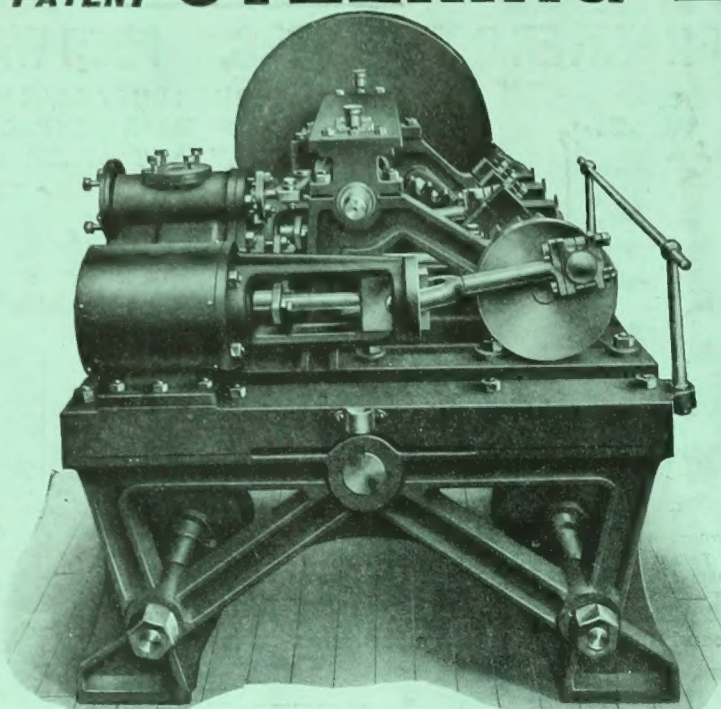
MACHINE TOOLS

**GENERAL
AND SPECIAL
FOR SHIPYARDS.**

LONDON OFFICE:—38 Victoria St., Westminster.

“MOSS” ^{PATENT} ^{THE} STEERING ENGINE

THE
CYLINDERS
ARE FIXED
AND
THE ORDINARY
SLIDE VALVES,
ECCENTRICS,
AND RODS
ARE
DISPENSED
WITH.



HAVING FEWER
WORKING
PARTS
THE COST
OF UPKEEP
IS
CONSIDERABLY
LESS THAN
ANY OTHER
STEERING
GEAR.

Sole Makers: **HIGGINSON & CO.,** Engineers, Hurst Street, Liverpool.

ENGINE TRANSMITTER AND
INDICATOR AS FITTED ON
R.M.S.S. “AQUITANIA.”



ADMIRALTY PATTERN
WHEEL HANDLE
TELEGRAPH.

CHADBURN'S (SHIP) TELEGRAPH CO. LTD

ADMIRALTY PATTERN TELEGRAPH

AS FITTED ON

R.M.S.S. **“AQUITANIA,”**
“MAURETANIA,” and **“LUSITANIA,”**

AND ON ALL THE

Principal Naval Vessels
OF THE WORLD.

Head Office and Works:

CYPRUS RD., BOOTLE, LANCs.

ALSO AT GLASGOW, NEWCASTLE, BELFAST AND LONDON.

